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Agricultural.

HINTS FOR THE SEASON.

COTTON PICKING will still be the pressing business for the regions in which this staple is produced. Every moment that can be spared from other work should be devoted to this. Short days and chilling winds, with lacerated fingers and wry faces, will make it a sad and disagreeable business, if not soon through with.

Cotton seed, if we are rightly informed, undergoes a rapid decomposition when exposed to rain and sun. So much of it then as is designed for a fertilizer, should be housed, that it may retain its fertilizing value till used in early spring. Men whose opinions we should value, have assured us that it loses 80 per cent of its manurial value if left uncared for till February.

Sweet Potatoes.

These should be housed before the frost comes. The old prejudice that the tubers should be left in the ground till after the tops are killed down by frost, has led to not the best practice. It is true that if the first frosts are but light, not freezing the ground below the very surface, no great harm is done to the tubers. It is so with our common pota-

toes. But the value of the tops as forage is destroyed. What that value is, we have no experience, but we often hear opinions expressed by those who ought to know, that it is considerable, and that the tops or vines, whether north or south, wherever the climate admits of the cultivation of this crop, are to be taken into the estimate as a somewhat important consideration. The *Cotton Planter*, a first-class journal of agriculture and horticulture, hailing from Montgomery, Ala., says, "They may be gathered and cured with great rapidity, and there is no forage in the class of hays for stock cattle and mules, to be compared to well-cured sweet potato vines."

Wheat.

Whether the Atlantic States are to grow their own wheat, instead of depending upon the West, is a question which we believe the middle regions of this Eastern slope, from New-York to North Carolina, have long ago settled in the affirmative, and carried into practice, to the extent of growing more than to supply their own wants, with the exception of such regions as, owing to the proximity of great cities, can make

market gardening more profitable than anything else. But with the extreme South, and the extreme North, it is otherwise. Agricultural writers often, we see, commend the growing of wheat, while practical farmers hold back. We see not why the latter should not be good judges. If Georgia, South Carolina and Alabama can purchase their wheat at a better lay from the avails of the cotton field; and if Massachusetts and the other New-England States can grow hay, roots and fruits at a better profit than wheat at the prices for which it can be delivered to those from the prairies, it may be asked why they should not do it? And yet there are advantages in growing at home for the home consumption, which should not be lost sight of. It enlarges the rotation of crops, and is therefore better for the land. It widens the area for the growth of this important cereal, and thus diminishes the danger of a short supply for the whole country, inasmuch as the enemies of the wheat crop seldom pervade distant regions of a country in the same seasons, but work in one region one season, and in others in other seasons. And it gives to the farmers of each region a sort of independence, a power of living, at all ordinary times, so far as farm produce is concerned, within their own resources.

If the far South, instead of running over twenty acres to get the wheat for a family at the rate of eight or ten bushels to the acres, would prepare four or five acres by making it first a clover lay, or turning in the cow-pea, and then plowing deep, manuring well, and putting in good, well-cleaned seeds, in the best manner, seeking their year's supply of bread from that extent of land, would not the idea that to raise cotton, to sell it in a distant market, and then to pay with the avails for wheat to be transported a long way, is more profitable than to grow their own wheat, become obsolete? Would not the planter find

that wheat growing to the extent of his own wants, is the most profitable cultivation he can engage in? We do not affirm this, but we have often thought that if the planters of the gulf States were as skilled in wheat growing as in the growth of cotton, it might appear that the former, to the extent of their wants, might be adjudged good policy.

With the New-England States, where there is a commercial city or a manufacturing village at every man's door, it seems to have become a settled conviction that the broad prairies of the West may better supply the wheat, and the north-east make butter, cheese, and in connection cultivate the grasses, the coarser cereals, and the root crops and fruits—articles in which the great West cannot so well compete on account of the difficulties of transportation. This may be a sound conclusion. We are not wise enough to gainsay it, and yet if we had a New-England farm, we would take no man's say so till we had made fair trial, but would experiment for forty or fifty bushels on a single acre, till assured by our own experience that the other is a wiser course.

If wheat in these States, to a limited extent, were cultivated in the best manner, just as if you expected to get a great crop, and meant to deserve it, there could be no killing loss in the experiment. We would advise New-England farmers not to settle down into the belief that they, of all men, both South and North of them, cannot grow this choice cereal, till they know by actual trial that it is so.

The time for sowing in all that region we suppose to be from the middle of August to the middle of October, that most years the early sown would do best, but that in others the late sown would prosper equally well, the early sown being on the whole the safest. The ground, it seems to us, should be limed, not directly for the wheat, but for the previous clover. Let the clover, at

least the second growth, be turned in. Plow to a good depth, and make the soil perfectly mellow. The seed (we believe a bushel and a half, if the ground is first wrought into a fine seed bed, is quite as good as more) should be treated as recommended by "A Son of a Pilgrim," in our last No., to clean it of all smut and of whatever enemies of the crop may lurk within it, and at the same time to secure a quick and uniform germination. If barn manure be used, it should rather be applied to the previous crop. Wheat will not, like corn, hasten the decomposition of coarse manure. The manure, unless well rotted, must be prepared by a previous mixing and combination with the soil.

If an old sod, on the hills of New-England, or in the high lands of New-York or New-Jersey, where wheat growing has been long discontinued, were turned over in May, treated to thirty loads of manure, and as many bushels of lime, planted with corn, sown in September with clover and herdsgrass, mowed the last of the next June, its second growth turned under in August, and a wheat crop put in about the first of September, with no other manure than that applied to the corn of the previous year, this could not be considered as an extravagantly expensive cultivation. "None so well as the farmer knows" what the wheat crop, taken as a part of the routine, would cost, or how many bushels of wheat you would need in order to make it a fair business for the three years. We should rather say four years, for if you sow grass seed with the wheat, or in the following spring, then there would be a fourth crop as the result of that course. For the first, we might estimate eighty bushels of corn, and a value of straw equal, if rightly cured and fed out, to two tons of hay; for the second year, two and a half tons of hay of a medium quality; for the third, we should hope for twenty-five bushels of wheat; and for the fourth, two tons of

pretty good hay, and a considerable value of fall feed; and the ground might be in quite as good condition for after use as when first broken up.

But suppose we have over estimated the chance for a wheat crop the third year. Suppose it to be worth but half the value of twenty-five bushels of wheat, all on the farm, the straw worth four times as much for the New-England farmer as for the western, even then would not the whole rotation be a paying one; or, in other words, cannot New-England farmers afford to make such experiments as this? They would not be greatly losers, as it seems to us, even if the wheat crop should fail altogether.

The farmers of Scotland grow forty, fifty, sixty bushels of wheat to the acre against greater obstacles of soil and climate than exist in any New-England State. With them there is a "will" and there is a "way." We admit that there is a more urgent motive with them for conquering the difficulties in that line, than with New-England farmers. They have not boundless prairies at the other end of their railroads and canals; and the question may perhaps yet be regarded as undecided, whether New-England farmers fail of growing their own wheat because they are not wise enough to take the best way of doing it, or because they are too wise to attempt it, on the ground that they can put their lands to a more profitable use. We should like to see the question tested more thoroughly than it has yet been, and we are by no means sure that when the New-England farmer sets his heart upon raising his own breadstuff, he will not do it as successfully and as profitably as the Scotch farmer has, and that the same will not be equally true of those parts of New-York where wheat growing is now looked upon as out of the question.

Rye.

The *American Farmer*, established at Baltimore not less than a third of a cen-

tury ago, by the same lamented advocate for American labor who inaugurated ours ten years since as the *Plough, Loom and Anvil*, still true to its original design, and one of the truest and most reliable journals among our exchanges, said a few months ago, "This grain should have been sown in August, but may still be sown if got in by the 10th of October, provided the ground be well manured." Whether this grain should have been sown in August, unless for fall and spring feed, we are not so sure. That it may yet be sown, there can be no doubt. We have often sown rye in November, and had great crops; and we do not remember ever to have failed of a good crop, where the failure could by any possibility be ascribed to late sowing. September would be our choice; and in what part of September we would be willing to accommodate to the demands of other and pressing business. As to manuring the land, if it had a good turf, we would rather reserve the manure for the next crop, but otherwise would apply it plentifully to a previous crop, say of Indian corn. Sow none but the best seed, well cleaned. One bushel, if the ground is well prepared, and it is sown evenly and rightly covered, is better than more. Many a year we have reaped as good rye as ever grew, from three pecks of seed to the acre. That crop (of eight acres) came in when all the cereals were uncommonly high, rye at that time bringing more than wheat at present; and the worth of the crop was twice and a half the then estimated value of the land. Suffice it to say that the same land has since been twice sold for less than \$10 an acre, and the value of that crop was more than \$25 per acre. Probably as much grain, and as good, and more straw, were obtained than if two bushels to the acre had been sown. We would, however, sow more now, but not over one bushel. That should be our rule. We remember to have heard our father, recently gone

to the better land, relate instances of remarkable crops of rye grown from half a bushel of seed to the acre.

There is a moral connected with that eight acre field of rye, which we will relate to our young readers in another part of this No., if we can get time to prepare the story, which will not take long, as it is wonderfully fresh in our memory, though more than thirty years lie between then and now.

We see the sowing of rye for winter feed at the South, and for fall and spring feed farther North, highly commended from certain quarters, which would seem to be respectable authorities. But we begin to think there are no authorities; and we want that farmers who read even the best agricultural papers, should think for themselves rather more than those that read none. Whether the latter think much any way is doubtful. We rather fear that their thinking powers are but poorly developed.

Potatoes.

A wag of an editor out West says, "A good potato is a good thing, but a poor one is poor indeed," pretty much what Solomon said about a good wife and implied with regard to a bad one—true in both cases, and as true of husbands as of wives.

Well, then, if you would have potatoes that are potatoes, good to eat, and not merely, as the Irishman said, *to fill up*, we suppose you have grown them on good, sweet upland, or, if on lowland, with plenty of alkaline manures, as wood ashes, lime, etc.; for if you have grown them on a sour bog, with no suitable appliance in the hill, it is too late to talk about good potatoes this year. But if you have grown the right sort, dig them before the ground freezes, a great while before, and get them out of the heat and light of the sun as soon after digging as possible into a cool, well-ventilated cellar, where they may lie undisturbed till planting time; and baked or boiled, you will find them good for

something else than to keep the ribs apart.

If, in boiling, they be put into cold water, with the skins pretty much unbroken, they will heat gradually as the water heats, and will be more uniformly cooked through than if put first into boiling water; and if the water be poured off a little before they are done, and the kettle be covered to keep the steam in, they may stand some time, provided the naughty "men folks" don't come to dinner punctually, without becoming water soaked or loosing much of their fine quality. The ladies, we believe, will not all subscribe to our "notions" about boiling potatoes, but then we will agree to differ good naturedly if they will. We never have heard of hanging or burning for a difference of opinion on this subject, though it is quite as important as some theological quibbles about which terrible persecutions have raged. But the ladies never would have gone in for the rack and thumb-screw, if they had not been misled by those whom they supposed they were bound to obey; and therefore we hope they will spare us, should they find us heterodox on the potato boiling question, especially as we have not learned that the dignitaries of even the oldest churches have decreed entire uniformity of belief on this question to be *essential*.

Care of the Farm, etc.

October is a good time to clean out the old ditches, and dig new ones if necessary; to build or to repair for the protection of stock in winter; to erect stone walls to from two or three feet under ground to four or more above; to straighten the water courses, and make everything on the farm look about as it should; to be fast getting ready for winter, and not only so, but for next summer, by doing up such things as cannot well be done in the growing season. The wise farmer will hold on upon his hands, as long as he can see his way

clear for paying them, and work on with his permanent improvements in the intervals of the fall harvest. About getting ready for winter and the coming spring;—did you ever see a farmer late in December climbing a ladder to put on a board that had fallen off, the furious north-west wind assailing him as if angry because he had not attended to that business sooner, he holding his great coat on with one hand, clinging to his hat with the other, hugging a hammer under his arm, holding half a dozen nails in his teeth, just ready to freeze to his lips, numb and almost helpless against Borean power, looking for all the world as if almost willing to be plunged down headlong to end his troubles at once, at best but half doing his work, and in danger of being sent out in a worse time to do it over? A pitiful sight that, and only to be averted by timely preparation. And then again, have you ever seen a farmer, head and heels in building an ice-house, a corn-crib, or a pig-pen, just when the corn should be planted? Spring is not the best time for doing such things. Sweet spring has commands of her own as well as autumn, and both must be obeyed in their time, else the farmer is distracted by the service of two masters at the same time, and he can no more do the bidding of both at once than he can serve God and mammon. Too much cannot be said in favor of doing those things which can possibly be done at any time, at such seasons as to prevent their clashing with others that, from the nature of our climate, must be done at a particular time, not when the farmer wills, but when the season calls. The setting of shade trees and most kinds of fruit trees, especially the apple, may as well be done now as in the spring, if stakes are put down to brace them through the freezing and thawing of winter; and how long would it be before one would have plenty of good fruit, if he *would* not set the trees in the fall and

could not in the spring? Think nothing of small consequence that adds to the beauty and the comfort of the home where your children are growing up, to remember for life and forever the beauties and comforts you gave them, their character and whole future being, the thoughts and the visions of their minds, the mind itself even, to be modeled in some measure by the scenery and the enjoyments of what you may call small things. The shade trees that adorn the home, and the fruits that gratify its striplings, are no unimportant matters.

Items.

We must put in another plea for the boys and girls. If the boys have done well through the summer, they deserve to have a good time at the fall shows; if not, do not punish them by withholding a real good, one that tends as much to help on a practical education for life, as any one day spent at school, or anywhere else.

And the girls;—are you teaching them to ride on horseback? They will teach themselves. A hint or two and a horse will make good riders of them all. Our farmers' daughters are not as much stronger, healthier and handsomer than the city misses as they ought to be, though it must be confessed that they surpass their city cousins in all these respects. More out-door exercise would do them good.

But for the invigorating national sports of England, kept up for both men and women, John Bull would not have been to-day the hale old fellow he is, nor would Young America be such a bouncing boy.

The life of a nation consists in no small degree in its physical energy. We are sorry to see American men and women becoming smaller and less healthy than their relatives at the other end of the long cable. Who does not know that a sound body is a better home for a sound mind, than one that is stunted, nervous, dispeptic; and that vigorous

health, that state of the body which can be maintained and perpetuated only by temperance and a great deal of stirring exercise, is vastly more favorable to all intellectual excellence, to high moral attainment, to all the noble aspirations of the soul, than the contrary?

Some will think we say too much on this subject. We only wish we could say it to better effect.

AMERICAN INSTITUTE FARMERS' CLUB.

BELIEVING, as our readers well know we do, in the value of the discussions of this club, we shall from time to time abridge and publish such portions as seem to us adapted to general usefulness.

JUDGE MEIGS, SEC.—The culture of tea in France, it is said, is not difficult. It is exactly that of the camellia. It may even be grafted on camellia. The green and bohea are distinct varieties; the period of green tea flowering is a month earlier than bohea. The Chinese count more than thirty-six varieties of tea.

PERPETUAL RASPBERRIES. — Chas F. Erhard, of Ravenswood, exhibited some branches of Raspberries with flowers, half-grown berries and ripe fruit. The only thing to be said in favor of these ever-bearing raspberries is, that they produce fruit a long time. It is not excellent.

ANDREW S. FULLER, Horticulturist, Brooklyn, said he had the Brinkley orange still in bearing. He ascribes their ever-bearing to liquid manure, fresh from the cow stable.

RUSTY OATS.—Prof. Maury mentioned the fact of horses having died from eating rusty oats, and suggested that the rust in this case was animalcula.

R. G. PARDEE.—The best flavored peaches I have ever eaten, as well as largest size of the variety, were grown in Canada. Greenhouse peaches are insipid and almost worthless. By the plan of layering we may be able to produce fine, healthy peaches, even if it is upon dwarf trees. We know that we cannot grow raspberries without layering.

PROF. MAPES.—We can't train a peach

tree with limbs below a horizontal line, without injuring the growth of the tree. It may do to layer down the young limbs in winter, but they must be lifted early in Spring.

BLIGHT IN CORN—Mr. Ambler—I have a farm in Bethel, Conn., and find part of my corn blighted as though touched with frost. But it cannot be, for nothing else has been touched by frost near it. I do not think I shall have two-thirds as much corn as the stalks indicated. The first symptom is spots on the leaves.

In a brief discussion on the old question, whether wheat ever turns to chess, the gentlemen who spoke seemed disposed to defer to the decision of scientific men, that no such change ever does or can take place, and yet they agreed that there are stubborn facts, which are hard to be got over, on any other supposition, than that not only wheat but all the cereals do sometimes turn to chess.

VEGETABLES FOR MARKET GARDENS.—Prof. Mapes—It is difficult to give any general rule. Land in this vicinity filled with pulverized shells, will grow cabbage year after year. I cannot do that. I cannot grow cabbage after rutabagas. None of the brassica tribe will grow after using hog-pen manure, or other highly nitrogenous manure. On Long Island, cabbage is often set in the potato field to grow as the tops die down. With the cabbage, lettuce is sown. I have raised 12,000 cabbages per acre. As to the most profitable crop near New-York, I can only say we can't afford to raise grain. I have raised over 100 bushels of corn to the acre, but I can't afford it, because I can raise 1,200 bushels of beets per acre, and 1,500 bushels of parsnips. I recommend beets grown in large quantity, because the market will bear a great many, and is seldom overstocked. The kind most generally grown is the long red beet, which is inferior to almost any other. It is woody. The turnip blood-beet is much better. The Bassino beet is the best for the table, but not as salable as the long red in our market. I can only raise parsnips profitably on my drained land, where they grow with very little manuring. I dig them by running a lifting subsoil plow along the row, 18 inches deep, which loosens the roots so they can be pulled out by hand.

Tomatoes, I find, grow much better by cutting away the entire top, with the little fruit, the lower ones ripening ten days earlier, and are much better fruit, and being early, sell higher.

Lima beans must be treated in the same way, by pinching off the buds when five and a-half feet high. No manure suits this crop so well as Peruvian guano. To get them early, plant them in sods two inches square, with the small end down, and place them in the cellar, and moistened to vegetate, and plant four sods around a pole.

Carrots will average 37½ c. a bushel in New-York, and are always salable, and are easily grown. Mix the seed with one-tenth its weight of radish seed, which grows before the carrots, and marks the rows so that they can be cultivated by a horse or mule, to keep the weeds down, and save hand weeding. It is good for the carrot crop to pull out the radishes for market purposes, or crush them by a roller as they stand. A mule can be trained to walk between narrow rows. A subsoil lifter is a good thing to run between the rows when the plants are small. A large lifter run by the side of the row will loosen the roots for harvest.

Melons require a peculiar trimming. Pinch off the first runner bud when the third rough leaf appears, and so on with the branches. This will make short vines in a round hill. There is nothing like deep tilth for melons. It is good to bore a hole with a post auger three or four feet deep under each hill. I would pinch back the whole tribe of plants of this kind—melons, cucumbers, squashes, all in the same way.

Potatoes I cannot grow without rotting upon ordinarily plowed land. On underdrained and subsoiled land my potatoes never rot.

The vines of melons should never extend to the vines of another hill. Highly fertilized land may be planted with melon hills four feet apart, and produce a good crop.

I will say, in answer to that question about

UNDERDRAINING—An opinion about underdraining at this day is of no account. The English Government have loaned to its people \$55,000,000 at 5 per cent to enable them to underdrain their farms; and no case has been found of underdraining that land was not benefited by it. No underdrained land ever

suffers from drouth. In all the loans for underdraining no loss has occurred in all England. If it were not for these improvements England could not sustain its inhabitants. The whole capacity of the land is increased to double what it was before. It is a settled question that all drains should be open at both ends.

It is settled also that the water enters the drains from below, and never runs as flush during a shower as it does the next day.

PRUNING BLACKBERRIES.—Wm. Lawton—A lady asks when should the pruning be done. Before the buds put forth in Spring. I cut back the wood of last year's growth one-fourth or one-third. If the stalk is three feet long, cut off one foot, and so of lesser or greater growth. I would cut away all but two or three shoots in a hill; each stalk will then produce two or three hundred full-size berries.

At a meeting of the Club, Sept. 6, John G. Bergen, a Long Island farmer, in the chair, a letter from an old Arab chief was read, *On the Horse and his Origin*.

The Arab chief says of the origin of the Arabian horse that it is held in Arabia that God created the horse out of the wind, as he did Adam out of the earth, and that he was originally a bay color, very perfect in form, and able to fly like the wind. The horse was marked with a white star in the forehead, and was created before Adam, who chose him in preference to borak, because he was handsome and equally fleet. The only approach to the original pure race are now owned by the Arabians. The letter says that it is held that some of the fleetest horses were originally the fleetest of all animals, not excepting the gazelle.

A good horse is judged by strong and well-known marks, and is absolutely without malice. Yet a well-trained horse will fight for his Arab master, and that is one of the reasons why he is so much esteemed. An Arab judges a good horse by the fineness of his lips and cartilage of the lower part of the nose. By the dilation of his nostrils. By the leanness of the flesh about the veins of his head. By the elegance of the neck and shoulders. By the softness of the hair, mane and skin. By the fulness of the breast. By the large

size of his joints. By the dryness of his extremities. But above all he depends upon a tradition of his ancestors, of the true nobility of his blood, and a careful examination of his moral indications.

THE WHEAT MIDGE.—The Secretary read an article by Judge Cheever upon the destruction of the great pest of wheat-growers. Judge Cheever says:

"I have come to the conclusion that it is in the power of the farmers to rid themselves mainly, if not entirely, of this terrible enemy. It seems to be well ascertained that the larvæ of this insect, after hatching from the egg deposited by the fly in the head of the wheat, and feeding upon the milky substance that forms the berry until it acquires the power of locomotion, leaves the wheat head and descends by the stalk, or falls to the ground, when it works itself down to the depth of an inch or more, and there remains in a torpid state, unaffected by any severity of frost, through the winter. Mr. Almy, an entomologist of Farmersville, Seneca County, who has studied the habits of this insect with great care and thoroughness, says they sometimes bury themselves, where the earth is mellow, to the depth of two inches, seldom more. Being so nigh the surface of the ground, the same solar heat which brings up the wheat in the Spring reanimates the larvæ, and they 'wriggle' themselves to the surface just in time to cast their skins and take wing as the wheat comes to head, and the female after meeting the male, commences her work of destruction, which she in a few days terminates simultaneously with her life. Prof. Hinds suggests their destruction as follows:

"If therefore, at any time between August and May of the following year, the ground be plowed to the depth of six inches, and in such a way that the furrow slices lie as compactly as possible, there can be no doubt that a vast majority of the pupæ will perish from inability to escape from their imprisonment."

Judge Cheever thinks that a general practice of sowing no clover or grass with wheat, and turning down the stubble, and keeping it down one year, will exterminate this pest.

OLON ROBINSON.—The Sec. speaks of this insect as the weevil. It is not, although very often called so. This destroys the wheat in its soft state in the ear—the weevil works in the barn.

THE CHAIRMAN—I have heard this called the flying weevil, to designate it from the barn weevil.

T. W. FIELD—I wish that we could call things by their right names. The same difficulty occurs in talking about curculio. I have heard talk about catching them in bottles. A man might as well undertake to catch foxes in bottles. I think we may get rid of many insects by the plan recommended by Judge Cheever, that is burying them under the surface. I think the larvæ of rose-bugs may be served in the same way to great advantage.

R. G. PARDEE, on the subject of small fruits, said;—For a market garden plantation of strawberries, to each 100 plants I would give the following proportions: Wilson's Albany, 60; Hovey's Seedling, 20; Longworth's Seedling, 10; Hooker's Seedling, 10.

I would not plant red Antwerp raspberries. For market the Franconia is better, except in peculiar locations, like Milton, on the Hudson, where Mr. Field says an acre and a quarter of land gave a crop worth \$800. I would plant Fostol raspberries for a private family.

ANDREW S. FULLER—I certainly would add Brinkey's orange, for private use or market.

SOLON ROBINSON—*Milk-Weed*—Here is a letter, asking for what some very wise man might think very trifling information. Is it so? Listen. The writer has settled upon the rich land of Wisconsin, and finds that the common milk-weed (*Asclepias Syriaca*) is becoming a great farm pest, driving out useful plants, and he wants to know if any one here can tell him how to get rid of, or even partially suppress the nuisance.

THE CHAIRMAN—I know of nothing but much plowing and hoeing to kill that pest.

MR. AMBLER—In Connecticut it only grows along fences and rich roadsides.

SOLON ROBINSON—At the West all the land is rich enough to produce it all over the field.

PEACH BLIGHT—Now, here is a letter that gives useful information. George Foreshow, of Hudson, N. Y., says that a handful of fine salt, scattered on the ground around a peach tree in June, has both prevented and cured the peach-tree blight.

CHAIRMAN—I put several handfuls to a tree about mine, and it killed it.

SOLON ROBINSON—That is the error—

you put too much. This letter says one handful. Here is another letter of inquiry about

CONVERTING STRAW INTO MANURE—I will read an extract from a letter from Lee County, Ill., as follows:

"Thrashing our grain soon after harvest, we have made it the practice to burn the straw each year. But now we wish to reform; we wish to convert it into manure. Thrown into great stacks, it is a long time in rotting. What shall we do to expedite the process? Will some one who knows give us information?"

For one, I would answer that I would spread the straw upon the surface as a mulch, and let time rot it. But if to be rotted in a pile, the process can be greatly expedited by simply adding a sprinkling of common salt, which will increase the moisture, and consequent decay. So would mixing in with the pile a few loads of prairie soil—particularly that from a slough; and so would any coarse, succulent green herbage. Above all, add all the waste animal matter possible to obtain, and frequently that is not a hard matter to get around a prairie farm, where cattle die from exposure, and perhaps from want of the straw that has been burned.

CULTIVATION OF FLOWERS—Andrew S. Fuller, Horticulturist, Brooklyn, exhibited a basketful of flowers, which were distributed among the females present, and much admired by them, particularly some seedlings of various sorts.

Mr. Fuller gave an interesting statement of the great labor of producing seedlings worth saving. He said: I have 200 seedling phloxes, and not one worth saving. Yet all improvements come from seedlings. But the handsomest and best of all summer flowers are roses, the best of which are seedlings. The *Souvenir de Malmaison* is one of the best roses known.

The hybiscus is a native, and all are single and coarse, and some day from seedlings we shall get a double flower, equal to double hollyhocks. As yet, I have not been able to get a double one out of a vast number tried.

To get double balsam flowers keep your seed for years, and the flowers will be more likely to come double.

Here is a hybrid trumpet creeper that I have made that I like.

A neighbor of mine has 8,000 seed-

lings Japan lilies, and only one worth saving.

Mr. Fuller held up a branch full of green and ripe Binkley orange raspberries—a seedling—and said that he held in his hands the handsomest flower that he knew of; it was far handsomer than bachelor's buttons, and had been an ornament to his garden all summer.

In preparing a seed-bed for flowers, make the soil fine; if it were sifted it would be all the better. Don't plant too deep. The true rule is to cover seeds with earth to the thickness of a seed, and then cover the ground with a white cotton cloth. The best manure that I have ever used is liquid manure, made by water and cow droppings.

Seedling Dahlias.—Mr. Burgess exhibited a variety of new and beautiful seedling dahlias. He said—I give a dahlia plant six superficial feet. To propagate roots, lay them down in beds in spring in a warm situation, and when they have sprouted two inches above the surface, take up the root and divide it with one sprout to each cut, and plant them in holes dug two feet deep and two feet wide, and manured with a peck of compost, first setting a stake in the hole to support the stalk when it grows. I planted and grew one year 11,775 seedling dahlias, and only got six worth saving. A seedling will flower the first year, if it grows well. Seed should be planted in boxes, covered until the seed vegetates. A dahlia needs watering extensively; it cannot well be watered too much. In potting all kinds of plants in the fall, fill about half an inch of the bottom of the pot with clean sand. In keeping dahlia roots, the great thing is to dry them well before putting them away. They must then be stored in dry cellars. A natural dahlia, the flower from which all our beautiful ones originated, has six petals. I counted the petals of one of my seedlings, the Suffolk Hero, and found 307 petals.

The Next Meeting.—The next meeting of the club will not take place until after the close of the Institute Annual Fair.

OUR COUNTY FARM.

By the generous bounty of the late Dr. Treadwell, of Salem, we have a farm of one hundred and sixty acres, centrally situate in the town of Topsfield, Mass.,

for the purpose of *experiments in culture*. Sixty acres of this is pasture land of first-rate quality, elevated and well watered. The remainder, with the exception of a few acres of natural grass, bordering upon a beautiful river, is level and favorable for cultivation. It is of the description commonly known as *plain land*—yielding fair products of corn and other crops, with proper attention. What it most needs is *stimulating energy*. How is this to be obtained? To the learned doctors in culture, and practical chemists in the field, is this question propounded. There is a young, intelligent, energetic man on the farm, ready to do what shall be deemed best to be done. Can't you, Mr. Professor, advise him in this matter? If this farm, thus situated, can be made to sustain itself, and become a pattern to be imitated, how can our agricultural societies better illustrate their power to benefit those around them? Will it not be better to concentrate their efforts on one farm, where the good that is done can be seen and observed of all men, instead of scattering them in small parcels, where they will soon evaporate and be forgotten? VERBUM SAT SAPIENTI.

South Danvers, Mass., Sept. 1858.

Beyond all doubt, Dr. Treadwell has done well, and if those in charge of the farm will do as well, much good will come of it. "An experimental farm!" Don't be frightened, reader. Every well-managed farm is an experimental farm. But don't misunderstand us;—we do not mean that every farm that is well managed, is given up to the trying of a thousand experiments, which a man of sense and practical skill, would know before hand could be of little or no use. The Treadwell farm should be so managed as to be a model for farmers, who live by the culture of the soil, and not for mere fanciers. To get the greatest value of produce, and at the same time to increase the value of the farm a little every year, is the first thing for an experimen-

tal farm. The second thing is to deduce truths from the management of it, which will be of much use to the management of that farm in future, and of some use to the managers of other farms. We advise the young, enterprising, and energetic manager of the Essex county farm, 1st, to make it pay 6 per cent on its estimated value; 2nd, to make it pay well for all the labor bestowed on it; 3rd, to make it worth a little more at the end of each year, for future occupancy, than it was at the beginning; 4th, to learn something by every year's experience how to manage it better the next year, so that not only shall the farm but the farmer be progressive; 5th, to diffuse the knowledge he gains by very definite, tangible, practical statements, that the farmers of the whole county may follow or avoid his example as shall seem safest.

It is by no means necessary that the trying of experiments should interfere with the profits of farming. Some people seem to think that to try an experiment is to throw away a year's produce. We confess that there are experiments, such, in some cases, as ought to be tried, which would somewhat peril the crop. But these, without a single exception, can be tried on such a scale, as would involve but a small loss, even if the failure were entire. Let an experiment of a doubtful nature be tried on a small patch. But the great mass of experiments are of such a nature that nothing will be perilled. Take for instance the question of deep or shallow plowing. Suppose you have a four acre lot of turf, which you wish to bear corn, rye, and clover the next four years, and that you mean to give it a heavy manuring the first year, and no more for the routine. We will suppose that you are really at a loss how deep you should run the plow. If you plow four or five inches deep, and put 20 loads of manure to each acre, it will be fairly within the footsteps of the fathers, and you will more likely than

not have fair crops. But if you should plow the first acre 6 inches deep and put on 10 loads of manure; the second 8 inches, and give 16 loads; the third 10 inches, and give it 22 loads; and the fourth 12 inches, and give it 32 loads, making 80 loads in all, do you suppose you would lose your crops? There is no danger but that you would get as much corn as in the old way. Then for the rye, plough each acre to the same depth. This done, compare the corn, the rye, and the grass of the third and fourth years; and you have not only got your crops, as much probably in aggregate as you would have had, with 5 inch plowing and an equal distribution of the manure over the whole, but you have had an opportunity of making careful observation on the profits of four years with shallow plowing and light manuring, as compared with those of deep plowing and heavy manuring—have learned something, not about other people's land, but your own—the very knowledge you want, and have learned it better than all the world outside could teach you.

There would be no difficulty in connecting another inquiry with this—that of fall and spring plowing—only plow one half of each acre in the fall and the other half in the spring, conducting the experiment otherwise precisely as above. You would then see whether the fall or spring plowing subdues your land best, and whether the worms work less with fall than with spring plowing. We would suggest, however, that four years is too short a time to carry out an experiment of this kind, and ten acres would be better for such an experiment than four.

We advise this young man, who has a good deal of life, it is to be hoped, yet before him, to start with a ten acre lot, and carry out the two experiments—one on the depth of plowing, and the other on the time of year—ten years. As often as he plows that lot, let him plow

the first acre 4 inches deep, the second 5 inches, the third 6, and so on to 18 inches for the last. As often as he manures them, let him put on two loads, say of 34 bushels each, for every inch depth of plowing, that is to say, 8 loads on the first one, 10 on the second, 12 on the third, and so on to 26 loads on the last. And as often as he intends a crop that would admit of either fall or spring plowing, let him plow half of each acre in the fall and the other half in the spring. This would make some extra trouble, but no great. It should be presupposed that the land is uniform in character, and neither remarkably heavy nor very light, say a medium loam. By the end of two years, it would be pretty plain whether shallow plowing and a little manure, or deep plowing and proportionable manure are the best for that land and for other that is like it. If the land plowed 10 inches deep and manured with 20 loads, instead of more or less, should be found to have paid best these ten years, it would be safe to infer that the part that had been plowed 12 inches deep and received 24 loads would pay best for the next ten years. But we are saying more than we intended. We are confident that a patient prosecution of such an experiment as we have suggested, would result in favor of deep and thorough tillage, not as a means of getting a great crop now and then to brag of, but as a matter of steady, permanent profit to the farmer.

That farming is the most profitable which makes poor farms good, and good ones better. There is not a farm among us more than half as good as it ought to be twenty years hence; and as a general rule, we venture to say that farmers whose land is growing better every year, are making a better living, educating their children better, and enjoying more of life than those whose farms are growing worse. It is unpaid labor that spoils a farm; paid labor that improves it. Therefore no

man can afford to run land down, be it his own or another's; but he can afford to improve it, especially if it is his own, so that he will have the benefit of its increased value.

Give the farmer of your experimental farm pretty large liberty, but let him make the money to operate with from the farm, and we venture the prediction that he will experiment prudently, and in that way only will his experiments be worth a fig to himself or anybody else.

He should read the *New-England Farmer*. Our old friend, Brown, will not mislead him. And if he will read our *Farmers' Magazine*, too, we do not believe he will get entirely off the track. Let us hear from you again once in a while, and tell us whether the Treadwell farm goes, or has to be carried. The latter is too apt to be the case with public farms.—Ed.

CROPS IN WARREN CO., IOWA.

ED. FARS.' MAG.:—Grant me the privilege of giving your readers a view of the crops in this county. The Giver of all gifts to man has disappointed many a farmer during the last wheat and the coming fall harvest. How true the words of Scripture, "Apollons may plant, and Paul may water, but God alone giveth the increase."

Two months and a half—April, May, and the fore part of June—time when farmers wanted to put in their spring crops—was so wet that it was an impossibility to sow anywhere near as much ground as has been usually sown in this portion of Iowa. Thousands of acres, that were intended by the owners to be sown, lay idle. One farmer, who lives close by me, who intended to have sown one hundred acres, got in seven. Many others were in the same condition. Those that had high farms succeeded better. Wheat that was sown on high land came up and looked well, while that on low, flat land, was drowned out.

High land wheat never looked better for a heavy yield, especially fall wheat, until some two weeks before harvest, when the *rust* made its appearance. Previous to the rust, the hopes of the tiller of the soil were the highest, in expectation of a good crop; but when that appeared, he had what is called in Yankee phrase, the "*Dumps*," or "*Downs*," sometimes called the "*Blues*."

Friend Nash, I believe that you have worked upon a farm—have seen one at least—and you perhaps have had the same disease, and know how to sympathize with us. (Most assuredly we have grown crops and lost them, and sometimes by our own fault, and sometimes from no fault of ours, and we know how it feels.—Ed.) Acres were never harvested. Some cut the best, thinking perhaps it might make seed. The grain is but little more than half grown. Please give us your views as regards its growing. (Our view is that, as a general rule, certainly, if not in every case, the best seed only should be sown.—Ed.)

Corn, of course, cannot be much more than a half crop, for it was very late before it was planted. With but few exceptions, it was not planted until the first to the middle of June. After it was planted, it was so wet that a portion of it rotted in the ground; even of what did come, one-half could not be worked.

Water stood between the rows, for it rained generally four days out of the week on an average. The ground was beat so hard that the plow would hardly make an impression on it, and nothing but a winter's freeze will restore it to its natural state. If "*Maj. Jack*" should delay his coming until late, a great portion of the corn may mature—as most of the farmers procured the earliest corn for seed. But if Jack should make his visit as early as he has the appearance of doing now, a great portion of the corn will not be ready to receive him as a visitor.

For the last four weeks it has been very dry, and the ground has become very hard. This will have an injurious effect upon the corn crop. It will not fill as it should. Still we trust that He who sends the rain upon the just and upon the unjust will send rain as we need it. Perhaps soon, for there is a cloud in the heavens as large as a "*man's hand*," and it may spread as in the days of *Elijah*. Perhaps when it does spread it may remain so, as it has during the fore part of the summer.

Oats are not a half crop. They for the first time, to my knowledge, were spoiled by the *rust*. Early sown were injured more than late sown. Most of them, I fear, will not do for seed. They, as well as the wheat, look well, and bid fair for a good yield.

Hungarian grass has made a good yield, the best of any kind of small grain. The wet weather agrees with it, while on other crops it was death, owing to the wet, and not the usual quantity of wheat sown. There was considerable of Hungarian sown in its place. It makes a good substitute for oats; horses eat it readily, and it being very heavy seeded, they thrive upon it. It makes good hay as well as grain; for feed its yield per acre is far more than the same of oats. I have heard farmers say that it is better than oats, (the seed,) but I prefer oats. Millet, where it has been sown, has yielded a good crop.

Potatoes—the mainstay, the bread of the sons of *Erin*, are nothing near a full crop. Soon after they were planted in the spring, the heavy rains washed them out of the ground, and a great portion of them rotted—have not done well. Upland pieces look well, where they were a good stand. Some complaint is made of their rotting now. If the "*taters*" should fail, I do not know what "*Pat*" will do. A goodly portion of this county is settled by the "*Pats*."

As a season, this is rather discourag-

ing to the farmer—poor crops, hard times for money, many of them in debt—is enough to give a man the “Blues.” I hope that fall crops may turn out better—the prospects look raw—and that the farmer may get well payed for his labor. Gold fever rages some here yet, but not to the extent that it did last spring. I think that there was more excitement than gold.

Respectfully yours,

L. S. SPENCER.

LYNN, Warren Co., Iowa, Sept. 1st.

Nothing makes us sadder than to see the hard-working farmer so defeated and disappointed. But we have a prevailing confidence in the goodness and wisdom of an overruling Providence. There are reasons beyond human ken for all these and greater trials to which erring mortals are exposed. The clouds will break, our ignorance be dispelled, and we shall see that God was good even in his seeming wrath.—Ed.

CROPS, &c., IN RITCHIE, VA.

RITCHIE COURT-HOUSE,
Virginia, Aug. 28, 1858.

ED. AMERICAN FARMERS' MAGAZINE.—

Dear Sir:—I now write you a few lines for the purpose of letting you know something of us, and to ask you some questions. Our wheat here last harvest was almost an entire failure, the rust destroying a great deal, and the weevil a very large quantity. There is one thing that is worthy of notice, and that is, that the fields sown earliest are the best, and also those on high land. The weevil worked a great deal less on upland, than on low land, and the rust was also worse on low land. Oats was a total failure, owing to the rust. This is the first time that I ever heard of rust hurting oats, and I would be glad to know if it is common in other parts of the country or not. It has made a clean sweep on all qualities of land in our country. I have heard of quite a number of Timothy fields being ruined by

rust, but have seen none. The corn crop from present appearances, will be not more than three-fourths of a crop. Potatoes are about half a crop.

Now, Mr. Editor, I wish to know the cheapest and best plan of building a mill to grind or press the Chinese sugar-cane, suitable for trying on a small scale, say one acre of cane, such a one as a mechanic can make, or that will cost no more than will justify a person to manufacture for 1 or 2 acres. A great many persons here have some cane growing, and yet not enough to justify them in going to much expense for mills. My friend John Fisher has raised the finest cane that I have ever seen. He planted in rows four feet wide, and hills two feet apart, leaving three canes in each hill. Perhaps you may think that it was too thick, but I think not. He commenced working it as soon as he could see it cleverly, (say two inches high) and gave it a good dressing. He worked it twice more, keeping the suckers down. His cane is now twelve feet high, on an average of the whole patch. Some stalks are as high as fifteen feet, and not done growing. This was the size on the 14th of August. The stalks were from six to eight inches in circumference. I would be very glad to receive information in regard to the cane mills as soon as convenient, or in time to be of service in working up the present crop. You can publish such information in the *American Farmers' Magazine*, and no doubt it will benefit a great many others as well as myself. I have just received the July and August numbers of the *Farmer's Magazine*, and find them full of very useful information. I consider it the best Farmer's magazine now published. Every farmer should have it. [So say we, and if we have not yet succeeded in making it the best, as our correspondent thinks, we will.—Ed.]

Yours Truly,

JOSIAH M. WOODS.

Remarks.—Rust, we suppose to be a

sort of parasitic fungus, that grows on the straw, and so exhausts its juices, as to leave them insufficient for maturing the grain. Whether it arises from a want of circulation of air, (owing in part, it may be, to too thick sowing,) as its occurrence in damp, calm weather would sometimes lead us to suspect; or whether it springs from a lack of soluble silica on the soil, owing to which the straw, instead of being glazed and hard on the surface, is soft and retentive of moisture, as its more frequent occurrence on peaty land would seem to indicate; or whether it may be owing to both these causes, and perhaps others, is more than we know. The sporules (a kind of seeds) may be destroyed by washing the seed before sowing, and thus the danger from rust be somewhat diminished, for whatever may be the cause of its predominance some seasons, we suppose it must start from seeds, or sporules, a fine dust which answers to seeds in ordinary plants. It attacks oats, and even herdsgrass, as well as wheat.

We cannot answer our correspondent's inquiries with regard to sugar mills satisfactorily; but from the inquiries we have been able to make we incline to the opinion that a thoroughly built, horizontal, three-roller sugar-mill, such as are being exported from this city all the while, for from \$300 to \$400 to the West Indies, (one being made to answer the purpose of a neighborhood), would do the work better than cheaper mills, and perhaps be in the end about as economical. Treadwell & Pell, 251 Pearl-street, in this city, manufacture such an article, and we learn that their price is \$350. They also manufacture an article expressly for the Sorghum, for \$125, which they warrant to do well. This would perhaps suit those better who dislike neighborhood partnerships, a thing certainly to be avoided, when it conveniently can be, though we see not why one man in a neighborhood might

not own a larger mill, and work it for his neighbors at a reasonable compensation, to be agreed upon beforehand.

We learn also that R. L. Allen, of this city, is manufacturing Sorghum mills for \$20, and from that all the way up to the price of a full-grown cane mill, but of the merits of these cheaper mills we know nothing.—Ed.

PRESERVING SEED CORN.

FARMERS who grow but a few acres of corn should not fail of preserving the seed in the good old way our fathers did, and if those who grow large fields of it will do the same, it will pay them well. We go in for following the old track where it was a good one.

Select the largest and most perfect ears, the earliest ripe should have the preference, and this can be decided by the hardness and the dryness of the husks as well in October as any other time—strip off all but three or four husks, brade from one to two dozen ears in a bunch, and hang in some cool, dry, well ventilated place, till planting time. If the crop is late, and the cobs wet, at harvest time, it may be well to hang the bunches in the kitchen for a few days, but not otherwise. Corn that is to be used for seed should never be subjected to the least heat or mould on the barn floor or in the stack. Indeed no corn should, not even that for the hogs, but special care should be taken to keep the corn designed for seed dry and cool, no matter how cool, if the cob is sufficiently free of moisture not to freeze.—Ed.

WEEDS.

Do not suffer the weeds to mature seed in October, if it can be avoided. We know it cannot in all cases, where the previous cultivation has been slovenly. But those rampant weeds, that grow about the homestead should be cut down or pulled up and thrown into the pig's-pen before the seeds are ripe. Portions of them the pigs will devour, and

it will help them to grow and fatten; the rest will go to enlarge the crops of next year; a day's labor in gathering them into the pig's-pen, if divided into several parts, say an hour each day, will be as surely paid, as any other labor, though it may not be as quickly; and one hour in preventing the sowing of the seed will save two hours in digging them up next summer.

It is the nature of the soil to be producing something; weeds and shrubs will grow unbidden; but we admire the management that compels every spot to grow something useful, and nothing that is a nuisance. Let the street through your farm, or your side of it if you have a neighbor over the way, be clear of all hurtful productions, such as might not be spread over the farm. Make it a neat grass lawn. You will be paid for it. If you would not, you would be proud of the neat, tidy appearance, and it does a man some good to be proud, provided only he is proud of the right things.—Ed.

STUMP PULLERS.

It has long been a matter of surprise to us that farmers will plow around stumps, leaving an unseemly balk, losing a considerable patch unproductive, sometimes breaking an implement, and not unfrequently injuring a team, instead of grappling with the obstacle and conquering at once. If grubbing out at the expense of a day's work for each stump was the only way of getting rid of them, it might be good economy to wait a few years for a hard wood stump to rot in the ground, and longer for a pine, or other soft wood. But as machines for their removal at a cheaper rate are now extant, the masterly inactivity of waiting from five to fifty years seems hardly excusable. A writer in the *Maine Farmer* about a stump puller offered in that quarter, says;—

To give an idea of the value of these machines, we will suppose a farmer desires to clear a field of ten acres of the

stumps; by the old process the removal of every stump will cost fifty cents. This will be, reckoning that there are forty stumps to the acre, \$20, or \$200 for the ten acres. By the improved machine of Mr. Hall, it will not cost over 10 cents each, \$4 per acre, or \$40 for ten, making a difference of \$16 per acre, or \$160 for the ten acres. This is a very great difference, and when we apply it on a large scale we can comprehend, in some measure, the value of the invention to the State of Maine alone. There are, or were, in 1850, according to the United States census, upwards of four millions of acres in farms, rising of two millions of which was under cultivation, and considerably above two millions were in uncleared or woodland. Estimating that but one-fourth of what is called cleared land is encumbered with stumps, and we have half a million or 500,000 to be gone over with this machine. Now, allowing but one half of my estimate of \$16 per acre in favor of this machine, say \$8, or eight times 500,000 it gives an aggregate of *four millions of dollars* that this machine alone will enhance the price of land in the State now under cultivation. I am aware that these figures will seem so astonishingly exaggerated at first sight, that I will remark, that if it is worth but one-fourth that sum it is worthy of the attention of every farmer.

Let our farmers use this machine liberally, let them pay close attention to the cultivation of the soil by availing themselves of every other labor-saving machine, and by manufacturing all kinds of manure and land enriching materials within their reach, and in ten years we cannot only produce all of every grain and fruit now grown within its limits, that the population of our State will need, but we will have a surplus to transport to other communities that do not and cannot produce a sufficiency.

This writer's "notions" about using "labor-saving machinery," saving all the "land enriching materials within his reach," and "giving close attention to the cultivation of the soil," are all right. Whether his calculations of the money value of an anti-stump warfare are correct, is more than we know. They may be overdrawn. We should more think the reverse; for the thorough cultura-

tion of a single acre is a gain, and when you apply it to millions of acres, it counts up. Of the stump machine of which he speaks we know nothing. But we know that there are stump extractors, which are a vast saving compared with the grubbing process. Among them, and the best we are yet acquainted with, is that of W. W. Willis of Orange, Mass. This machine we have seen work often, and there was no failure. With a force that can be worked for less than ten dollars a day, including the use of the machine, it will easily take out more than a hundred stumps a day, and consequently the cost is considerably less than 10 cts per stump; and it leaves the ground in perfect order for the the plow, not a root in the way.

But our object is not to commend any particular stump extractor. We only wish to call attention to the great benefit of hastening the exit of the stumps. October and November are a good season to open the war upon them. Some of them it must be confessed are very obstinate squatters, counting their right to the soil, not by years but by generations. We actually know grandsons to-day plowing round stumps that their grandfathers drove around a life-time, and they are hard to be ousted. But where there is a will there is a way.

These old settlers will give up less obstinately than the towers of Redan and Malakoff did, and there is better reason for waging war with them than there was with those. They should be made to yield. Who doubts that a rod of ground without a stump in it is worth all of 10 cts a year more than one with? But with a suitable machine they can be removed for an average of less than 10 cts. It will pay them once a year for a long time to come, not less than fifty years for a pine stump in a moist soil.

Would it not be good policy to begin the war this year and finish it next; or even to finish this year if you have capital, since it is certain of being a good

investment? We must not however press too hard for a speedy conclusion of the business, for we know well that the farmer cannot do in one year all that he means to do. But declare the war; make a break in the enemy's ranks; get up your own courage; and you will make a clean victory ere long.—Ed.

FISH PONDS.

WE desire earnestly to call the attention of our readers, one and all, to the subject of fish ponds. There is no article of food more universally popular or more wholesome than fresh fish. To enjoy it in all its excellence and perfection, it is indispensable that it should be cooked immediately after it is taken out of the water. Persons living remote from ponds and rivers cannot procure supplies as promptly as is desirable. They must therefore, if they would regale themselves with so great a delicacy, resort to artificial ponds or streams. This would be no difficult matter on almost every farm in this country. There is no region more bountifully supplied with springs of clear, pure water than ours. Wherever there is a spring sufficiently bold to supply a family with water, with very little labor and no pecuniary expense, a pond may be constructed that will supply them bountifully with the nicest varieties of fish. We speak from experience when we say that a small pond—covering not more than the fourth of an acre—well stocked, will supply a small family, if not a large one, with a dish of fish almost every day throughout the year. It is now customary for almost every farmer who properly appreciates the comforts and luxuries of the table to put up ice. To secure his annual supply of this article, it is important that he should have a good and a permanent pond for the purpose. Let him have such a pond supplied with a few of our finest varieties of perch, and in a couple of years he may begin to luxuriate in both of these luxuries to his heart's content. We would by no means limit the size of a fish pond to the fourth of an acre. A half or even a whole acre would not be objectionable, as the supply of fish would of course bear a proportion to the area and depth of the water.

Our mode of constructing a pond is as

follows: After selecting a suitable location, take care to avoid a very sunny exposure, both on account of the ice and the fish, we cut a ditch from three to four feet wide, according to the depth we need to go to reach the clay, cutting out all the roots carefully. When we have dug this ditch the full length of the contemplated dam, we turn about and throw the earth back into the ditch, and build the dam immediately over the ditch, with dirt altogether, taking it from the upper side, which will give more depth of water and more security against leakage and breakage. When we have raised the dam to the requisite height, we cut a waste around each end, seven or eight feet wide, and of sufficient depth to make the dam secure from overflow in time of heavy floods of rain. If the source from whence we draw our supply of water is near, we deem it best to cut a head ditch carrying it both sides of the pond and emptying it some distance below the dam. Care should be taken to keep far enough from the pond to prevent this ditch from becoming a drain, in case it should wash deep, that would let the water wash off from the pond. The object of this ditch is to carry off the muddy water and floods that might carry off many fish and endanger the dam.

When the pond is completed, we have only to get our angling implements, go to the next pond or river, with a bucket on our arm—and while enjoying the sport of fishing, in a few hours provide a stock to start with. Or we may take a seine, and go to work in a more business like way.

In selecting fish for the pond, we prefer the varieties of perch—the freckle, or silver perch, the black perch, the wide mouth, or Joe Dentons (as they are called amongst us), and the yellow perch. In fact all the varieties of perch common to our waters are excellent for table, afford fine sport to the angler, and may be caught at almost any season of the year. The chub is not suited to small ponds. He is very voracious, soon eats out the other sorts of fish, and then preys upon his own progeny. We would recommend to those who would like to cultivate this variety to build a second pond for them below the first, so that they may prey upon the small fish that escape through the wastes. The common round fish of our rivers will not breed except in running water,

but we like to throw a few of them in the pond to be taken out in winter. They grow quickly and do not prey upon the others. If our spring is a bold one, we could rear the mountain or speckled trout, with entire success, between it and head of the pond, by sinking boxes at intervals in the stream, of two to three feet depth, and six or eight feet long, and putting a few stout rocks at the bottom. The great difficulty, however, in regard to this fish, is the distance to which we must go for them. It is very much to be regretted that our wealthy gentlemen do not pay more attention to rearing fish. In New-England we are told some of our most distinguished men have regarded the subject as well worthy of their efforts.

In some parts of France artificial ponds are constructed on a large scale, and command very high rent. They are rented by the acre. We know of no reason why artificial ponds may not be as productive in Virginia as in any part of Europe. Our springs furnish as pure water as any in the world, while the varieties of fish are as numerous and as fine as can be found anywhere.

As a measure of domestic economy, the rearing of fish commends itself to every farmer. As a source of healthful, innocent recreation to our sons and daughters, it is worthy of our consideration. We have rarely known boys, who have been taught and encouraged in the frequent and skillful use of the angle, addicted to the grog shop, the gambling halls, or any of the low haunts of rowdyism. It is a refining sport. All anglers, almost without exception, are amiable—and among the votaries of the art we can enumerate many of the greatest, best, and most distinguished men. The illustrious Patrick Henry, if not the most successful, was at least one of the most persevering disciples of the good old Isaac Walton. No one can tell how much the silent hours of thought and reflection which this great apostle of liberty indulged, while watching his cork on the still waters, contributed to prepare him for the eventful struggle of the revolution.

We shall conclude this article by recommending to our readers a plan by which we believe the fish pond may be made a very great convenience, almost if not as great as the chicken coop itself. Let the fisherman sink a box of convenient length and depth just below

the spring, so that the water will flow through it and keep it full. Let the box be covered with a lid of boards, sufficiently open to admit the air freely, with hinges and lock for security. Whenever he may take more fish than are needed for present use, he may put them in the box, where they will grow and thrive, and whence he may take them to the kitchen at short notice alive and fluttering, to be dressed for himself, or to regale any friend who may happen to step in unexpected or too late for a regular family dinner.—*American Cotton Planter*.

INVENTIONS.

THE following on recent improvements, which we cut from the *Scientific American*, relates so largely to inventions pertaining to agriculture, that it will not fail to interest our agricultural readers.

John D. Tifts, of Cuyahoga Falls, Ohio, has invented an improvement in separators or winnowers. It consists in having the discharge orifice of the fan case provided with a segment shell, by which the size of the orifice may be regulated as occasion may require, and using in connection with the slide an adjustable blast director, so that the device is well adapted to winnow large or small grain.

L. H. Parson and G. Houston, of Middletown, N. Y., has invented an improvement in the wire-toothed horse rake. They employ supplemental springs, arranged and connected with the teeth, so that while the teeth are properly braced and stayed, they have at the same time the requisite degree of elasticity.

Next comes an improved clearing device, to be applied to seed drills, invented by O. H. S. Brumfield, of Centerville, Ind. The invention consists in having a series of hooks or curved teeth attached to a rod, the ends of which are fitted in horizontal guides, and connected to pitmen, which are attached to cranks, these parts being so arranged as to clear all weeds and other obstructions from the ground in advance of the drill, and thus prevent its clogging.

Messrs. Conklin & Newton, of Stirling, Ill., have produced a novel seed-distributing device, especially applicable to broadcast seed planters.

J. B. McCormick, of Versailles, Ky., and W. R. Baker, of Boston, Mass., have

invented an improvement in seeding machines, which relates to a novel means employed for forming the drills or furrows, and dropping the seed into the ground.

The next invention, that of E. L. Lyon, of East Randolph, N. Y., relates to an improvement in that class of seeding machines in which the seed-distributing devices are attached to wheels, and are operated by the rotation of the wheels as the machine is drawn along. The invention consists in the peculiar construction and arrangement of the distributing devices as applied to the wheels, so that seed may be planted evenly either in check rows or in parallel drills.

Joseph D. Smith, of Lancaster, Ohio, has also invented a machine for planting maize, or corn, and other seed, in check rows. The invention consists in a peculiar seed-distributing device, and also in a novel device for forming the necessary furrows to receive the seed also in a peculiar arrangement of the framing, whereby the device is allowed to conform to the inequalities of the ground, and the seed-distributing portion elevated free from the ground, when desired, or when moving from place to place, or in turning the ends of rows, &c.

And last, but not least, W. A. Mahaffy, of Carimona, Minn., has made an improvement in the seed-distributing device of seeding machines, whereby the seed is discharged in measured quantities from the seed box, and conveyed from thence to the conveying tubes at the bottom of which the furrow teeth are formed, the seed being deposited in the furrows in quantities precisely the same as they are discharged from the seed box.

In Steam apparatus and appliances we notice the steam cock invented by Albert Fuller, of Cincinnati, Ohio, which is composed of a plug of rubber or other suitable elastic material, placed on the valve stem, and fitted between a metallic shield on one side and a metallic cap on the other, the cap having a nut bearing against it. By these means due provision is made to compensate for the wearing of the plug, and the casualty of the forcing of the plug through the valve seat by the pressure of the steam effectually guarded against.

J. H. Winn, of Portage, Wis., has invented an improved apparatus constituting a combined safety valve and steam pressure gage, which consists in a very

simple method of applying and arranging one or more weighted pendulous rods, and an index and a dial in combination with a piston valve and suitable arrangement of steam passage, whereby the escape of steam from a boiler, as soon as it arrives at any desired pressure, is provided for, and any pressure of steam below that at which it is desired to escape, is correctly indicated by the index on the dial.

Travelers, emigrants, and in fact every one who ever has had to travel in a railway train by night, and who knows the uncomfortableness of a night journey—how the cars rocked, but allowed no sleep—how you tried to make yourself comfortable, and could not—all who have experienced the inconvenience will thank J. C. Dewitt, of West Bloomfield, N. J., K. Freeman of Fond du Lac, Wis., and W. Painter of Wilmington, Del., because each of these inventors has invented a method of arranging seats, and other parts of railway cars, so that without taking away any often necessary room in daytime, they can in a few moments be made into sleeping cars, giving a good bed or berth to as many as were seated. We cannot explain them without engravings, but each has some special feature to commend it to a favorable reception by the railroad companies and traveling public.

Among the inventions which may be said to promote Domestic Economy we see many useful improvements. First we may notice the lamp invented by James P. and Ellen Kenyon, of Brooklyn, N. Y. It is especially adapted for burning coal oils or other hydro-carbons, and as these contain variable quantities (according to their purity) of carbon and hydrogen, they require a greater or less supply of air to the flame. To obtain this exact quantity with little trouble, two wicks in separate collapsible wick tubes are employed, and placed at such an angle that their flames meet and join together, while between them a current of air is supplied to support combustion. Outside these wick tubes is a cap or cover, by raising which the wick tubes separate, and consequently more air passes up to feed the flame, and by depressing the cap they are brought closer together, and less air passes up between them. By lighting the lamp and moving this cap up and down, and one can regulate the amount of air which will fully consume the particular quality of oil then in the

lamp, and consequently there is no smoke, and no necessity for a chimney, or any artificial draft creator.

G. W. Smith, of Aurora, Ind., has invented a foot-warmer for forges, which is a chamber or box placed in the ground, or below the flooring adjoining the forge, and the place where the workman usually stands. This box is supplied with steam generated in a water twee, if such twee be used, or if not, a tank is inserted in the wall of the forge so that steam may be generated in it, and supplied to the foot-warmer.

J. H. Roome, of New York, has made an improvement in tailors' and other shears, by forming the handle and upper cutting blade of the shears in two parts, and so connecting the former to the body or shank of the lower cutting blade and to the upper one as to enable the leverage exerted by the thumb to be gradually increased with the closing of the blades.

A. W. Hale of New-Britain, Conn., has invented an improvement in portable pressure bells for house use. It consists in the employment of a vertical sliding arbor, which works through the center of the shell of the bell, said arbor having a pin projecting horizontally from it, and also having a spiral spring placed around it, the above parts being used in connection with a spring or elastic tongue, provided with a projecting plate, so that a very simple device is obtained for sounding the bell by simply depressing the arbor.

A simple, cheap, and efficient coffee-roaster has been invented by Samuel Tower, of Grand Rapids, Mich. It is simply two hollow hemispheres of metal, which, fitting together, form a spherical or spherical chamber, in which the coffee is placed to be roasted. The axle on which it is rotated forms a lock to keep the two parts together, and it is equally applicable for household or manufacturer's use.

The ladies have lately given much employment to inventive genius, and the ingenuity of many inventors has expanded in direct proportion with the size of those much abused but graceful additions to the female form—the hoops. A. Smart, of New York, has invented an improved metallic clasp for securing the hoops to the tapes of skeleton skirts. This clasp is a small plate of metal secured to the hoop, and the tape passes through slits in the back, and is then

held secure. It is simple and convenient, doing away with all knots, and other annoyances.

A. G. Davis, of Watertown, Conn., has invented a new parasol and sun umbrella. The invention consists in having the handle of the parasol, sun shade, or sun umbrella formed of two parts, one part being fitted into and allowed to slide in and out from the other, and used in connection with a stop and pressure bar, slide ferrule, and hub, the whole being arranged so that the handle may be extended or lengthened as the implement is opened, and shortened as it is closed or folded.

J. T. B. Rogers, of New York (assignor to G. B. Sloat, of Philadelphia, Pa.) has invented a new device for producing a tension on the needle thread of sewing machines. The invention consists of two conical surfaces, one of which is concave, and forms a cap to the other, which is convex, and an adjusting screw and spring, the whole being combined to produce upon the thread passing between the cones, friction, which is sufficiently variable to produce a degree of tension on the thread that can be regulated with extreme delicacy.

John Agnew, of Columbia, S. C., has invented an improved coupling for securing together the ends of metal bale hoops, which consists in having a small metal casting with a longitudinal slit in it, of double taper form, and having the ends of the hoops doubled, or bent over in loop form, so that the same may bind or become wedged in the casting, forming a perfect fastening.

Wm. Todd, of Cherryfield, Me., has invented a combination of rollers, placed at such an obtuse angle with each other, and a tapering roller placed beside them, so that pieces of lumber may be rolled on to them and guided to the tapering roller without regard to the position of the log. It is intended to facilitate the piling, removal or stowage of logs or lumber.

Issachar A. Hansell, of Springfield, Ill., has produced a drawing-board for perspective drawing. It has an adjustable curved strip fitted in each side of the board, the outer edges of the strips being curved parts and forming guides for the square, the curves being struck or formed from the vanishing point or points of distance of the object to be drawn, and determining the proper angle at any point of their curved surface for

the vanishing lines. The board has also straight guides at each side in order that the square, when required, may be adjusted even with the base of the board.

Jeremiah Howard, of New-York, has made an improvement in mills for crushing sugar-cane, which consists in applying, by suitable means, hydraulic pressure to the lower roller of crushing mills, so that the rollers will be allowed to yield or give, and the space between them and the upper rollers be regulated according to the work to be performed.

An invention which has long been wanted, is supplied by A. Pearsall, of Nashville, Tenn., who employs an inclined mandrel, clamps and welding roller, arranged so that in the machine, bellows' pipes and nozzles may be closed and welded in a very expeditious and perfect manner.

The carding machine has received some improvement from C. E. Price and J. Haythorn, of Thompsonville, Conn. The invention consists in the employment of a revolving spirally-grooved or threaded cylinder, applied below the comb which removes the fleece from the doffer, and near to and parallel with the doffer, for the purpose of receiving the fleece as it is struck from the doffer by the comb, and conveying the same away by means of its revolution, in a direction parallel with the axis of the doffer, through a tube arranged at one side of the machine. By this contrivance they are enabled to produce a better quality of yarn from stock of given quality, and make very little waste.

In making carriages more comfortable, and providing for the safety of persons who take the easy exercise of carriage riding, we notice two inventions. The first is a carriage bow prop invented by D. B. Wright and L. Sawyer, of Amesburg, Mass., the object of which is to obviate the difficulty attending the present mode of attaching props to carriage bows. By the present mode of attachment the leather or covering of the top is not allowed to work or move around the prop, and consequently it is liable to wrinkle, as the braces or rods which the props support are moved, and the top raised and lowered. The usual strain, also, to which the leather is subjected, is avoided, and the improvement makes a better finish, adding considerably to the appearance of calash tops, and also allows mechanics better facilities for finishing or "binding off" the top.

John C. Dewitt, of West Bloomfield, N. J., has invented a new buckle for securing harness traces and hame tugs, the object of which is to obtain a buckle or fastening for securing the traces of harnesses to their hame tugs without injuring the traces as is the case with the ordinary buckle, and at the same time to obtain also a fastening that will admit of a ready adjustment and form a sure connection.

Here we must stop, and yet there are many other valuable inventions in this week's List of Claims which we must, from want of space, omit to notice, but we have at any rate shown a sufficient number to demonstrate the wide range that invention takes, and to prove the progress of mechanical science.

WASHINGTON AS A FARMER.

THE following extracts from Irving's *Life of Washington*, showing his love for country life, and his habits as a farmer, will interest your readers, if they love their farms as he did his.

In his letter from Mount Vernon, he writes: "I am now, I believe, fixed in this seat, and I hope to find more happiness in retirement than I ever experienced in the wide and bustling world."

This was a deliberate purpose with him, the result of enduring inclinations. Throughout the whole course of his career, agricultural life appears to have been his *beau idéal* of existence, which haunted his thoughts, even amid the stern duties of the field, and to which he recurred with unflagging interest, whenever enabled to indulge his natural bias. Mount Vernon was his harbor of repose, where he repeatedly furlled his sail, and fancied himself anchored for life. No impulse of ambition tempted him thence; nothing but the call of his country, and his devotion to the public good. The place was endeared to him by the remembrance of his brother, and of the happy days he had passed here with that brother in the days of his boyhood; but it was a delightful place in itself, and well calculated to inspire the rural feeling.

The mansion was beautifully situated on a swelling height, crowned with wood, and commanding a magnificent view up and down the Potomac. The grounds immediately about it were laid somewhat in the English taste. The estate was apportioned into separate farms, de-

voted to different kinds of culture. Much, however, was still covered with wild woods and indented with inlets; haunts of deer and lurking places of foxes. "No estate in United America," observes he in one of his letters, "is more pleasantly situated. In a high and healthy country, in a latitude between the extremes of the heat and cold; on one of the finest rivers of the world; a river well stocked with various kinds of fish at all seasons of the year, and in the spring with shad, herrings, bass, carp, sturgeon, etc., in great abundance. The borders of the estate are washed by more than ten miles of tide-water; the whole shore, in fact, is one entire fishery."

Washington carried into his rural affairs the same method, activity and circumspection that had distinguished him in military life. He kept his own accounts, posted up his books, and balanced them with mercantile exactness. The products of his estate, also, became so noted for the faithfulness, as to quality and quantity, with which they were put up, that it is said any barrel of flour that bore the brand of George Washington, Mount Vernon, was exempted from the customary inspection in the West India ports.

He was an early riser, often before daybreak in the winter, when the nights were long. On such occasions he lit his own fire, and wrote and read by candlelight. He breakfasted at seven in summer, and eight in winter. Two small cups of tea, and three or four cakes of Indian meal, (called hoe cakes,) formed his frugal repast. Immediately after breakfast, he mounted his horse, and visited those parts of his estate where any work was going on, seeing to everything with his own eyes, and often aiding with his own hands. Dinner was served at two. He ate heartily, but was no epicure, nor critical about his food. His beverage was small beer or cider, and two glasses of old Madeira. He took tea, of which he was very fond, early in the evening, and retired for the night about nine o'clock.

We find him working for a part of two days with Peter, his smith, to make a plough on a new invention of his own. This, after two or three failures, he accomplished. Then, with less than his usual judgment, he put his two chariot-horses to the plow, and ran a great risk of spoiling them, giving his new inven-

tion a trial over ground thickly swarded. Anon, during a thunder-storm, a frightened negro alarms the house, with word that the mill is giving way, upon which, there is a general turn-out of all the forces, with Washington at their head, wheeling and shovelling gravel, during a pelting rain, to check the rushing water.—*Vol. I. p. 310.*

This farm, with its buildings and out-houses is fast falling into decay. Soon, all traces of his work there, will be gone. Let us come forward, before too late, with a good will, and help substantially the women of the country, who have bought it, and are trying to pay for it. In this State they are already at work, asking for pennies from children, and any sum, great or small, from men and women. A number of "Lady Managers" are collecting, but many more are wanted. If no one is at work in any village or neighborhood, I propose that two or three smart active women or young girls should offer their names and their help. I see by the papers, that subscriptions and names are sent in to the office of the "Mount Vernon Association," Cooper Institute, New-York City. A friend has proposed, that as the time for holding our county fairs is at hand, there should be a box labelled, "Fund for the purchase of Mount Vernon," at every fair in the State. Place it where it can be easily seen by all visitors, and let no one be satisfied until he or she has given something, or is doing something. Every little helps. This fall must do the work in the country, and the State of New-York shall not be behind any other in the Union, in giving this proof of her love and gratitude to Washington. His life-long labors gave us our freedom and our homes. Let us preserve the one he loved for our children, and make it the property of the Public. There is now an opportunity to do so. A large sum has already been raised, but more is wanted to make up the purchase-money. Every one becomes a member of the "Mount Vernon Association," and a part owner of a Farm, by paying one dollar! Who will help?

The above was received from the Mt. Vernon Ladies Association, office at Cooper Institute New-York city, with a request that we would be "kind enough" to give it a place. We do so

with great pleasure, not however as an act of kindness, but of simple justice to a great and good cause in which these ladies are engaged, and in which we hope and believe they will succeed, to the extent of giving Washington's homestead to the nation now, and his whole estate ere long. God speed their work. It is a good one—one of the few great undertakings, about which there would hardly seem to be room for a difference of opinion.

We claim to be a gallant nation. Let us see how soon a reasonable call from the best ladies among us will be answered and the bills all footed. We think ourselves patriotic. Well, these ladies have entered upon a work, which, with our gallantry and patriotism to aid, will soon be achieved—will be achieved sooner or later, whether we aid or not, for the ladies never let go of a good thing, till it is finished, but sooner if we respond promptly—and when achieved will effect more to bind us together as one people, than a thousand traitors can do to separate us. What State will go out of the nation that possesses the home and tomb of Washington. Wo to the State that attempts it, and wo to the State that shall ever provoke a sister State to seek such an exit. It must not be. We look to what these ladies are doing, as a strong preventive. Prevention in this case, as in all others, is a thousand times better than cure.

We like the idea of a box at the fairs. Everybody should own a part of the national farm. If the men and boys will put in a tenth of what they would otherwise spend, and those who spend freely, a-half, we are sure the boxes will be heavy before night. Do you say, the ladies will have all the glory of the deed? But who are they? Our mothers, wives, sisters, daughters; and who will be so mean as to envy them the glory? Not one.

A penny a piece from us all will make a purse of \$300,000. One dollar will make up for ninety-nine who give

nothing. Be careful not to give too much, but give quick; and the ladies will be through their first purchase, and ready to commence another; for we reckon that they do not mean to stop till they have secured the whole estate of Washington, and put it into condition to do honor to the country. So mote it be.

WORTH KNOWING.

ONE pound of green copperas, costing seven cents, dissolved in one quart of water, and poured down a privy, will effectually concentrate and destroy the foulest smells. For water closets aboard ships and steamboats, about hotels, and other public places, there is nothing so nice to cleanse places as simple green copperas dissolved; and for sick rooms it may be placed under the bed in anything that will hold water, and thus render an hospital, or other places, for the sick, free from unpleasant smells. For butchers' stalls, fish markets, slaughter houses, sinks, and wherever there are offensive putrid gases, dissolved copperas and sprinkle it about, and in a few days the smell will pass away. If a cat, rat or mouse dies about the house, and sends forth an offensive gas, place some dissolved copperas in an open vessel near the place where the nuisance is, and it will soon purify the atmosphere.

The writer of the above probably rather overestimates the power of copperas as a deoderiser. It is, however, good for all the purposes he has named. On manure heaps, and especially in all fermenting manures, it would be a powerful retainer of the ammonia, and might be used plentifully to advantage, provided the manure is to be applied as a top dressing, or not ploughing in very deeply. If to be ploughed deeply into heavy soils, (which by the way we do not believe should ever be done,) its effect would be to sour the soil and do more harm than good.—Ed.

RUST IN OATS—WHAT IS IT?

THROUGHOUT the whole southwestern portion of the Union, the oat crop has suffered from a terrible blight, which from its resemblance to the fungus sub-

stance that sometimes attacks wheat by that name, has been called *rust*. So far as we are informed, rust in oats has hitherto been unknown. We have never heard or read of anything of the kind, in any section of the country. The fact that it is thus unusual opens a wide and interesting field to the naturalist, and, in this case, to the entomologist, as it invites investigation in a channel, so far as we can ascertain, heretofore unexplored.

While in West Tennessee, a short time since, we took occasion to examine the blade of the oat under a microscope (kindly furnished us by the Baily Troupe) and were greatly surprised with the phenomenon which the glass revealed. Since then we have followed up these examinations, by the aid of more powerful instruments, at the Medical College in this city, in company with several scientific gentlemen, among whom were Drs. Briggs and Buchanan, of the medical faculty.

The cause of all this destruction of the oat crop is a living worm, too small to be plainly seen with the naked eye. A single blade or leaf of the oat sometimes contains hundreds of them. They lie encased in the tissues of the leaf or blade, where they have been germinated, beneath the epidermis or thin pellicle over the exterior portion of the blade, and, as they progress in development, the skin of the leaf is raised into curious puffy blisters. The growth of the worm subsequently ruptures these, and it escapes to feed on the plant. When first released from their covering, they are of a beautiful, clear red color, almost transparent, but soon begin to change color and form, getting more opaque and dark in appearance until, in the course of transformation, they become a black bug, with legs and wings, when they attack the head or grain of the oats.

Under the microscope, the dust which remains on the leaf closely resembles that on the wings of butterflies.

How this innumerable army of infinitesimal worms originated is yet a mystery. It is a singular fact, however, that wherever the greatest quantity of rain has fallen, there the oat crop has fared the worst. In our recent trip through West Tennessee, we saw but a single field of oats, between the Mississippi and Tennessee rivers, which was not a failure, or into which it would not be folly to put a scythe blade. That field was near Denmark, in Madison County, and sown

very early. It is well known that more rain has fallen in West Tennessee this season than in any other part of the State; hence the extreme wet weather must have had some agency in the production of this animalcule. It is also well known that moisture and heat will produce and multiply animal life, millions per hour, and therein we judge is the secret of this destruction of the oat crop. It is one of those cases of natural phenomena which occur only at a certain stage in the growth of plants, and under peculiar states of temperature and weather. It may happen next season, or it may not occur again for many seasons.—*Southern Homestead.*

It seems to us that rust in oats is not a new thing as this writer supposes. We have many years ago seen what was called rust in oats—the straw turning black or dark brown near the bottom and becoming spotted upward, the grain at the same time shrinking, so as to diminish the yield and render it lighter by the bushel.

The worms spoken of in the above, which afterwards become black bugs, and attack the head or grain, must be something new, or at least different from what has been called the rust. That, we had supposed to be a fungus, caused by warm, moist weather, without much wind—a vegetable and not an animal production.—*Ed.*

THE "BLACK TONGUE DISEASE."

ALMOST all our Southern exchanges have for some time past contained accounts of the destruction of cattle in Florida, Georgia, in South and North Carolina and other States, by the pestilential disease called the Black Tongue. As the disease seems to be spreading and may pass from North Carolina into Virginia, and thence into Maryland, and elsewhere, it is well that our farmers should be forewarned, and so, perhaps, forearmed; for the spread of this plague involves the loss of milk, butter, and beef. The disease has extended so widely, that butchers in Columbia, S. C., have announced to the people there, "that they consider it a duty to the public as well as to themselves to stop killing beeves for the present." At Wilmington, N. C.,

in consequence of the disease having reached that place, the municipal authorities have kept a strict watch upon the markets. A friend lately from Savannah, Ga., informs us that on board the steamer in which he left that city, milk purchased there could not be used, and on examining it he found it had turned green, like stagnant water. In those neighborhoods where the disease has appeared, the inhabitants generally have ceased to eat beef. The *Mobile Mercury* records the death of two persons near that place from drinking milk from diseased cows, besides the deaths of several others from the same cause, at a distance. It appears that domestic cattle are not alone the sufferers, but that in Florida, particularly, the deer are perishing from the same disease, in large numbers, and, according to a letter in the *Savannah Republican*, dogs, and the buzzards in Burke county, Georgia, that have eaten the flesh of cattle that have died of the Black Tongue, have perished from the effects of such poisonous diet. The cause of this malignant disease does not seem to have been yet ascertained, though by many it is attributed to the rust, which in various parts of the Southern States, as elsewhere, has affected the grain crops, and it is said in some places the grass also. The cattle are attacked by a stiffness, and walk as though foundered; white froth is discharged in large quantities from the mouth,—they can eat nothing, fall away rapidly, and the tongue and gums become dreadfully swollen and turn black, and death speedily releases them from their agony. The remedies that have been found most efficacious, are according to one writer, a strong solution of copperas, alum and saltpetre, as a mouth wash, to be applied by forcing the mouth open as wide as possible, introducing a gag, and thoroughly washing the parts affected with a mop, two or three times a day, or oftener; besides drenching with salt and water, and rubbing powdered alum in the mouth. Another uses spirits of turpentine, in the proportion of half a pint, mixed with a gallon of copperas water, as a wash; whilst a third recommends a mouthwash of salt, vinegar and pepper, of which a wineglass full is to be poured into the animal's mouth two or three times a day; and, in addition to this, gives in the food, a table spoonful of the following compound: a table spoonful of copperas, 3 table spoonfuls of sulphur

and a quart of salt, well mixed. A writer in a North Carolina paper, gives the following as a remedy that he has used with success upon his own stock. He places in a thick cotton cloth, one table spoonful of tar, one of salt, one of soft soap, a teaspoonful of copperas and a piece of asafoetida about the size of a peach stone, then ties the cloth securely, after wrapping it with its contents, around a bridle bit, then puts the bit into the animal's mouth, and the bridle over the head to hold it there, and renews the supply of the mixture every other day. This last is certainly an ingenious mode of administering the remedy.—*American Farmer.*

CANKER WORM.

EDITOR OF FARMERS' MAGAZINE :—I do not propose to occupy a place in your columns supposing myself capable of supplying any fresh knowledge upon the history of this great enemy to fruit and ornamental trees; but rather with the hope of leading fruit-growers to a notice of facts already extant, and thus disabuse the minds of many who now confound the canker worm with the apple tree caterpillar, and suppose it to be a winged insect which deposits the egg—and therefore no preventive means to be used to destroy it. As early as 1796 to 1800 the canker worm was known in, and, until within a few years, confined to New-England. Its ravages upon apple trees about that time were so great as to call forth from Prof. Peck "a treatise upon the natural history of the canker worm in New-England," which was read before the "Massachusetts Society for the Promotion of Agriculture" and published in their proceedings.

In 1841 a "treatise upon insects injurious to vegetation" by T. W. Harris, the well known entomologist, was published at the expense of the State, and a second edition was published in 1852, and, greatly to be regretted, has passed out of print, and there are but few copies to be found outside of the public libraries. Mr. Harris has since called attention to this subject in various communications

to the agricultural journals of New-England. How far his warnings have been heeded is answered in the fact that this worm is now doing more real damage to the apple crops of the Middle, New-England and Western States than any other worm or insect known.

The canker worm is of the caterpillar genus and properly belongs to the species *geometors*, (measure-worms) but the female, unlike some of the species of geometrides, (and the apple-tree caterpillar) *has no wings*. Its moth is classed by Harris under the name *Phalena vernata*; the males have wings and, as before said, the *females are wingless*, and their chrysalis formed in the ground near the foot of the tree. (Harris page 361.)

"It was formerly supposed that the canker worm moths came out of the ground only in the spring. It is now known that many of them rise in the autumn and in the early part of the winter. In mild, open winters I have seen them in every month from October to March. They begin to make their appearance after the first hard frosts in autumn, usually towards the end of October, and they continue to come forth, in greater or smaller numbers, according to the mildness or severity of the weather, after the frosts have begun. The general time of rising is in the spring, beginning about the middle of March, but sometimes before, and sometimes after this; and they continue to come forth for the space of about three weeks. It has been observed that there are *more females than males among those that appear in autumn and winter*, and that the males are most abundant in the Spring. The sluggish females instinctively make their way towards the nearest trees, and creep slowly up their trunks. In a few days afterwards they are followed by the winged and active males, which flutter about and accompany them in their ascent, during which the insects pair. Soon after this, the females lay their eggs upon the branches

of the trees, placing them on their ends, close together in rows, forming clusters of from 60 to 100 eggs or more, which is the number usually laid by each female. Immediately after the insects have thus provided for a succession of their kind, they begin to languish, and soon die. The eggs are usually hatched between the first and the middle of May. The leaves first attacked will be found pierced with small holes; these become large and more irregular when the canker worms increase in size; and, at last, the latter eat nearly all the pulpy parts of the leaves, leaving little more than the mid-rib and veins. They leave off eating when about four weeks old, and begin to quit the trees; the greater number letting themselves down by their threads from the branches. After reaching the ground, they immediately burrow in the earth, the depth of from 2 to 6 inches." Forming little cells or cavities in the ground they, within 24 hours afterwards, change to chrysalids, and remain until late autumn and early winter, then to come out and crawl up the trees for their deposit of eggs. I may add what Harris perhaps deemed unnecessary, that *neither male or female spin or form a web or nest upon the tree*, hence "in the early part of the season they do not attract much attention; but it is in June, when they become extremely voracious, that the mischief they have done is rendered apparent, when we have before us the melancholy sight of the foliage of our fruit trees and of our noble elms reduced to lifeless shreds, and whole orchards looking as if they had been scorched with fire." When we consider that each female reproduces 60 to 100 of its kind, and that Harris wrote 17 years ago, and no really practicable means used for preventing this increase, can we wonder that their number is now millions, or that the farmers apple crop fails and his trees die; for the trees being stripped of their foliage in midsummer, "are forced to throw out new leaves during the heat of the sum-

mer, at the ends of the twigs and branches that still remain alive; and this unseasonable foliage which should not have appeared until next spring, exhausts the vigor of the trees, and cuts off the prospect of fruit." I hear in every part of the country this season complaint of apples falling when half grown, and in every instance I find the evidence of the canker worm's work, and if not this year, within a year or two back the trees "looked as if they had been scorched." From the foregoing it follows that prevention is not only better than cure, *but is cure, and the only cure*; and it is a matter of surprise that some one has not, in this age of agricultural progress, before this devised some more effective means for preventing the worm from ascending the tree, than what is given in any of the works on fruit-growing. Tarring the body of the tree has long since been abandoned as "a remedy worse than the disease." Bandaging the tree with canvas and covering it with tar might be effectual, but requires to be retarred "every afternoon from Oct. to May," and therefore is seldom practised. The lead collar encircling the tree and filled with fish oil is the most effective, but the oil more or less escaping down on to the trunk is found injurious to the tree, and the lead collars are too expensive for ordinary orchards. Still, I am obliged to leave the subject without being able to suggest any better method, but hoping this article may call forth from some one suggestions on this point. As the female begins to ascend the latter part of this month let me urge upon your fruit-growing readers, *the necessity of taking immediate steps* to do what they can towards protecting their trees for another year. Our city fathers may rely upon it that unless something is done to protect the elms of the city, their end is at hand, but taken in time they may be saved.

More anon, *perhaps*.

RUSTICUS.

SUBSOIL YOUR LANDS.

WE very often find ourselves interested and amused by the different explanations we receive from those who *think* they have *subsoiled* their lands, and they tell us how admirably their *plow works*; but when we come to examine the implement, we find it only a *deep-tiller*, or one of the double *gang-plows*—and those who have been using them have supposed these were subsoil plows; in fact, we have found persons who make it a business to *sell* agricultural implements, that *did not know* what a *subsoil* plow was! They had *heard* that it was a plow that *worked the soil deep*, and therefore *any* plow that could do this, eight or ten inches, *must* be such a plow. We find, too, with much regret, many who are extensively engaged in farming, that have no conception of the value of the subsoil plow, or its use; and being wrongly informed, are thus kept in the dark, and remain without the advantages that would accrue if better advised.

There is as much difference in the construction, use and advantages of an ordinary plow and a *true subsoil*, as there is between a hoe and a spade; the one is for use upon the surface soil, while the other turns up, reverses and mixes the *lower* and the *upper* strata, permitting light, heat and moisture, to the extent cultivated; and also to allow the vegetation growing upon the soil thus treated to penetrate and receive nourishment to the roots, which permeate through all the earth thus moved.

A true subsoil plow *pulverizes* the soil, while the deep-tiller only breaks and loosens it, and thus far it is excellent; but the subsoiling system is the only *true one*.—*Cal. Far.*

If the farmers in that Pacific State are benighted, it cannot be because the editor of the *California Farmer* has not done well, for he has given them, that is, if they would take it, one of the very best Agricultural papers in the land. But after saying this, which we do most heartily, we must beg leave to doubt whether he has so described a true subsoil plough in the above, that men so much in the dark, as he represents some of the Golden State farmers to be, will understand him.

We would distinguish thus:—a com-

mon plough is one that runs deep or shallow as you gage it; but to whatever depth you run it, one inch or one foot, it turns the soil over, lays it bottom upwards—reverses it; a subsoil plough run at what depth you will, say two feet, reverses not a particle; the upright part splits the soil from top to bottom, acting wedge fashion or like a coulter; and the horizontal part attached to the lower end, like a very small double share at the end of a very long coulter, lifts the soil, and at the same time crowds it laterally, each way. Every particle of the soil, after it has been through, is within an inch of where it was before, and most of it within much less than an inch. But it has been moved. The stratum next above the steel, was lifted an inch or two; that lifted the stratum next above it; that the next, and so on to the surface; the moving and breaking of the soil being upward and outward, so that the portion of soil affected by the operation widens from the bottom like the letter V.

Go through the field with a subsoil plow running two feet deep, and you bring up no cold soil, but you stir a block of soil, as long as the field, two or three feet wide at the surface, and sloping inward to an edge, or nearly so, at the bottom, and yet it requires little or no more strength of team to draw such a plough, than to turn a furrow seven inches deep. You have moved a great deal of soil; but you have moved it only a short distance, just enough to break it up and let in the air. It is an economical operation, and one, which, in all soils of tolerable consistency and not water soaked, may be practiced to great advantage. Whether it is of any use in very light, gravelly soils may admit a doubt. It might prove injurious. On clay soils undrained it is labor lost. But on such soils when drained, it is of the greatest service.

Every farmer should own a subsoil plough, or, if not, should hire the use of one to try its effects on his fields. Pre-

judice against subsoiling would soon die a natural death, that is, would be dispelled by certain knowledge, if all would try it. We do not say there are no lands that would fail to be benefitted by the operation, aside from undrained clay lands. For aught we know there may be conditions of soil and subsoil, in which subsoiling may be useless or even hurtful. But we doubt this. We name it as a possibility and not as a probability; and if such a case exists, we believe it is the exception only, not more than one case in a thousand, while in nine hundred and ninety-nine cases the benefit would be clearly marked, upon a fair trial.

We say make the trial. We would not ask the farmer whose opinion is averse to subsoiling to try it over a hundred acres, at an outlay of \$200. But why not try it on a single acre, see for yourself whether it does good or harm, and then be your own adviser whether to discontinue or to extend it.

THE HESSIAN FLY.

(*Cecidomyia Destructor*.)

In 1857, the *Bureau of Agriculture and Statistics*, at Toronto, C. W., awarded three premiums, 1st, 2nd, and 3rd, for as many essays, out of many that were presented, on insects and diseases injurious to the wheat crop. The first premium was awarded H. Y. Hind, Professor of Chemistry at Trinity College, Toronto. From this prize essay of Prof. Hind we condense the following, as what seems to be of a practical character and important at this time. In future numbers, we may give our readers other portions of his essay, relating to other enemies of this important crop.

ORIGIN OF THE HESSIAN FLY.

A common impression prevails that this insect was introduced into America by the Hessian troops in their straw from Germany, during the year 1776, at which time the British Army, then in occupation at Staten Island, received large reinforcements of Hessians under General de Heister. This idea has been

ridiculed by many European entomologists, who have asserted that the insect is strictly American. It appears, however, that its existence has long been established and known in France, Germany, Switzerland, and some of the larger Islands of the Mediterranean; probably for more than a century it has attracted attention in those countries, although the extent of its ravages may not have been known and consequently not recorded. We may, therefore, accept the popular narrative of its introduction here, and avail ourselves of all the information which the experience of its past history, habits and ravages in Europe can afford.

This insect was first noticed in America in Long Island in the year 1776, or 80 years ago. It proceeded inland at the rate of fifteen or twenty miles a year, and in 1789 it had reached 200 miles from its original station. It is now found as far west as Iowa and Minnesota, following the cultivation of wheat, wherever that cereal is introduced in the westward progress of settlement on this continent. The Southern States have suffered greatly from its ravages, and it seems to adapt itself without any difficulty to all the climates which admit of the cultivation of its favorite food.

HISTORY OF ITS PROGRESS.

The following records of the appearance of this destructive insect in the United States and Canada, have been collected from various sources, but chiefly from the United States Patent Office Reports, Dr. Fitch's Essay, the transactions of the New York Agricultural Society, American and Canadian agricultural periodical publications, correspondence, &c., About the year 1776 the Hessian fly was introduced into Staten and Long Islands from Europe.

1779, Caused great damage to wheat in Long Island. 1786, Appeared in New Jersey, 40 miles south-east of Staten Island; east end of Long Island; Shelter Island. 1788, Very destructive near Trenton, N. J.; commenced its ravages in the State of Pennsylvania. 1789, Reached Saratoga, 200 miles north of its original station; very destructive there in 1791; continued until 1803, when it disappeared. Re-appeared in 1845. Common in the middle Atlantic States. 1790, Very common and destructive in the middle Atlantic States of the Union. 1791, Less common in the middle

States; arrived in Delaware in vast multitudes. 1792, Destroyed in Delaware an immense quantity of wheat. 1797, Appeared west of the Alleghany Mountains.

In 1801, it first appeared near Richmond, Virginia. 1802-3 and 1804, Very destructive in Virginia. 1817, Ravages renewed in New York State, Pennsylvania, Maryland and Virginia. 1818, 1819, Noticed in Pennsylvania. 1820, Common in Maryland and Pennsylvania. 1830-6, Disappeared in Lower Canada. 1831, Crops much injured in Seneca County New York. 1842, Very destructive in Pennsylvania; Maryland and Ohio visited by it. 1843, Western Pennsylvania, Maryland, Virginia and Ohio all suffered this year. 1844, Very destructive in Illinois, Indiana, Michigan, Wisconsin, Iowa, Ohio, Western New-York, west end of Long Island, Pennsylvania. 1845, Destructive in Illinois and Maryland, very destructive in Georgia; disappeared from the districts in Michigan and Indiana, where they had committed havoc the preceding year. 1846, Very destructive in Maryland and ruinous in Georgia. Common in New York, parts of Western Canada and Eastern Pennsylvania. In Illinois, Wisconsin and Iowa, near the Mississippi. Unusually destructive this year.

In Georgia the Hessian fly was observed to issue from its pupa case May 6th. 1847, Common throughout the wheat growing States of the West. Common in New-York, but not generally destructive this year. General, but not destructive, in the County of York, U. C. It was observed very generally in the autumn depositing its eggs on the young wheat over wide areas in the United States; also in County of York, Canada West. Great fears excited in the United States for the safety of the harvest of the ensuing year. 1848, "The crop of 1848 was, undoubtedly, one of the best and largest ever grown." 1849, Very general and destructive in some of the counties of New-York—Oswego, Albany and Columbia Counties. Ravages great in Ohio.

In 1850, disappearing from parts of Ohio, also from parts of Michigan. "The Hessian fly, one of the enemies to our wheat growers visits us at intervals of from four to six years, continuing its ravages through two or three seasons, and then apparently disappears." 1851,

General improvement in Pennsylvania and Maryland; Hessian fly not troublesome. Virginia much improved; the fly "scarcely dreaded." No Hessian fly in Galena County, Ohio; disappearing in Oakland County, Michigan, "for years." Not troublesome in Indiana; general immunity from its ravages. In Buckingham County, Vermont, 1851, the Hessian fly had almost disappeared, and from its great diminution the farmers thought they could sow their wheat in September, which resulted in the immediate increase of the fly, and a consequent falling back to late sowing and proper preparation of seed. 1852, Hessian fly attacked wheat in Fauquier County, Virginia, when sown before October. The same in Buckingham County, Vermont. Not known to any extent in Penobscot County, Maine. 1853, Committed great ravages in some parts of Pennsylvania—Centre County and Clinton County. 1854, Visited Niagara County, N. Y. "The Hessian fly is another enemy of ours, and in trying to get an early crop of wheat by early sowing, we constantly incur danger from the Hessian in the fall of the year. If frost occur soon after wheat is sown in the fall, in time to kill the Hessian fly, we rarely suffer much from it.—Onondaga County, N. Y. Wheat more or less injured in Kent County, Michigan, when sown before 20th September. Destructive in Maine, Aristook County.

DESCRIPTION OF THE INSECT.

By Dr Harris.

The head and thorax of the fly are black; the hind-body is tawny, and covered with fine greyish hairs. The wings are blackish, but are more or less tinged with yellow at the base, where also they are very narrow; They are fringed with short hairs, and are rounded at the end. The body measures about one-tenth of an inch in length, and the wings expand one-quarter of an inch or more. The transformation of some in each brood appears to be retarded beyond the usual time, as is found to be the case with other insects; so that the life of these individuals, from the egg to the winged state, extends to a year or more in length, whereby the continuation of the species, in after years, is made more sure.

THE FEMALE HESSIAN FLY.

By Dr. Asa Fitch.

The head and thorax of the female are

black. The antennæ are about half as long as the body, and composed of sixteen joints, each of a cylindric oval form, the length being about double the diameter; each joint is clothed with a number of hairs, surrounding it in a whirl. The joints are separated from each other by very short translucent filaments, having a diameter about one-third as great as the joints themselves. The thorax is oval and black; the poisers are dusky; the abdomen is of a black color above, more or less widely marked at the sutures (joints) with tawny fulvous, and furnished with numerous fine blackish hairs.

The ovipositor is rose-red. The wings are slightly dusky. The legs are pallid brown, the tarsi black. The several pairs of legs equal each other in length, being about one-fifth of an inch long when extended, of which length the tarsus embraces one-half. Short basal joint indistinct.

THE MALE.

By Dr. Asa Fitch.

In the male the antennæ are three-fourths the length of the body. The abdomen consists of seven joints besides the terminal one, which consists of a transversely oval joint giving off two robust processes, armed with in-curved hooks at the tips.

In the living specimen the abdomen is of a brownish-black color, more or less widely marked at the sutures with pallid fulvous or smoky whitish lines. In all other points the male coincides with the female in its character.

HABITS.

The Hessian fly lays her eggs upon the young leaves of wheat in the autumn (September) and in the spring (May). Many observers have witnessed the fly in the act of depositing her eggs at these seasons of the year. The eggs are placed upon the upper surface of the young leaves of the autumn wheat, and sometimes exceed thirty in number. They are generally arranged in the longitudinal depressions between the minute ridges of the blade. Their appearance is that of very small reddish colored points or spots. Their length is considerably greater than their diameter, and appears to bear the ratio to the latter dimension of five to one, the length being about one-fiftieth of an inch, the breadth or diameter about one-two-hundred-and-fiftieth. The form is cylindrical.

The eggs of the autumn brood are hatched within a week of the time they are laid, if the weather be warm; during the prevalence of cold and unfavorable weather they may remain unhatched for a period of three weeks. The white colored maggot, as soon as it is liberated from the egg, passes down the leaf, between the sheath and stem, until it reaches the first joint (the crown); here it becomes stationary and apparently fixed upon the stem, nor does it change its position until it assumes the form of the inert worm or its pupa. It reposes with its head towards the root of the plant.

When young autumnal wheat is attacked by one or more of the maggots, the infested shoots will be seen in the following spring to be withered and changed to straw color. If two or more shoots proceed from the crown of the root, those only to which the maggot is attached will wither and die. In young plants, death of the part affected is produced by the abstraction of the nutritious juices which would otherwise be appropriated to the nourishment of the shoot. The increased power of absorption and assimilation of food possessed by the plant when the spring brood of the fly appears (in May), enables it to resist to a great extent the wasting attacks of the maggot, whose attachment is then made to the second and sometimes the third joint.

In young autumnal wheat the base of the sheath is at the crown of the root, and it is here that the autumn brood of the fly must be sought for.

The maggots appear to live wholly by suction. They do not penetrate the stem, or make any apparent incision; they produce, however, a depression, caused by the obstruction they offer to the growth of that part of the plant where they are seated. These depressions, though not always apparent on the outside, when produced by several maggots of the second brood in the early summer months on the first or second joint, greatly weaken the stem, and render it liable to be blown down and broken by a light breeze of wind, when it has attained the altitude it requires on approaching maturity. Sometimes a swelling or gall is the result of the attack.

The manner in which the maggot of the spring brood affects the stem in the early summer months, seems to arise

from its presence preventing the deposition of the necessary amount of silica or flint immediately under its body. It is well known that the great strength of the hollow cylindrical stem of the wheat plant is due to the large amount of silica it contains, and where there is a deficiency of this strengthening material, the stalk is unable to support the weight of the ear, when agitated by wind; were the usual quantity of silica present, the small reduction in the diameter or dimension of the stalk (supposing no gall to be formed) at the point where one or more of the maggots are seated, would not materially interfere with its strength. The absence of silica seems to be the chief cause of its liability to be broken by agitation.

The Underhill wheat, so long cultivated and celebrated for its immunity from the attacks of the Hessian fly, affords an admirable instance of silicious shield of the wheat stem resisting the attacks of the fly. Those varieties of wheat which produce strong flinty stalks have long been known not to suffer much injury from the presence of the spring maggot. The natural tendency of these varieties to assimilate large quantities of silica, enables them to withstand the weakening effect due to the insect, under which other varieties, naturally less rich in silica, would succumb.

The preceding remarks refer solely to the injury caused to the wheat plant by the weakening of the stem, and its fracture before arriving at maturity. It is to be observed, however, that the presence of two or more of the spring larvæ of the Hessian fly must operate very disadvantageously in other respects. On thin-stemmed varieties the growth of infested stems is often altogether arrested by fracture, if the maggot descends to its seat above the first or second joint, before the plant has acquired a strong and healthy growth, and under such circumstances the field has been very appropriately likened to one through which a herd of cattle had been making their way.

Since the injury occasioned by the larvæ of both broods of the Hessian fly is produced in the *first instance* upon the stem, whether above the crown of root in the young wheat, or at the first, second, or third joint of that which is farther advanced, it necessarily follows that a more or less healthy condition of those parts of the plant will enable it to

resist to a corresponding degree, the attacks of the insect. A strong and vigorous tillering growth in the fall and spring, is required to maintain a condition of comparative health, under the attacks of one or two of these parasites, until maturity is attained. Hence the reason why vigorous, well-grown, flinty-stemmed varieties survive and yield a fair return, while weak and sickly plants or thin-stemmed varieties fail, no new stalks or shoots being formed in the fall or early spring when the infested ones die, and in the early summer the weak stems which have survived sink under the exhausting drain of the spring brood. So far then the depredations of the Hessian fly when not present in overwhelming numbers, may be greatly lessened and in part overcome by good husbandry, and a careful selection of seed of approved varieties.

When the autumn maggot has arrived at its full growth, its outer skin, at the approach of winter, becomes detached from the body, and serves first as a larva, and ultimately as a pupa or chrysalis case. This separation arises from a general contraction of the body of the maggot, whereby it occupies less space than the outer skin, which invested it during its growing state. The outer skin now acquires a tough consistency, and a dark brown color, somewhat similar to a flax-seed in appearance, hence the name of this state of the insect, which might be more properly distinguished as its cased larva condition.

The maggot remains in this protecting case throughout the long and cold winter months, without any marked change of form.

At the advent of spring the dormant larva assumes the pupa or chrysalis state, still remaining within its now pupa case, which has become quite brittle, "breaking asunder transversely if rudely handled, and one of its ends slipping off from the enclosed pupa, like a thimble from the end of the finger."

After remaining in this condition for ten days or a fortnight it wriggles out of its case, works its way up to light and air, emerges through its cracked pupa skin, and takes the form of the fly, to live its short life ten days or more. Dr. Fitch thinks that in all parts of the United States the Hessian fly will probably be found in its fully formed pupa state, about a week after the liverwort, (*Hepatica triloba*), the trailing ar-

butus, (*Epigæa repens*), and the red or swamp maple first appear in bloom, and simultaneously with the flowering of the dry strawberry (*Comaropsis fragarioides*) the common five-finger (*Potentilla Canadensis*), and the hill-side violet (*Viola Ovata*).

The wonderful adaptation exhibited during the winter sleep of the larva of the Hessian fly in its larva case, to resist atmospheric influences, such as great extremes of temperature, moisture and drought, throughout the winter months, is perhaps the most remarkable feature in the economy of this insect. We see at the close of autumn the larva preparing for its long dormant winter state, not by changing its position, and seeking security from wet, or frost, or drought (for dry air is common in the winter months), nor by spinning a cocoon, in which similar protection may be secured, but by shrinking within itself, and allowing its outer skin to form a hard and impervious protecting shield to its tender body, which remains soft and pliant within, and, as far as we know, safe from all ordinary atmospheric changes.

The resistance of insects to the influence of intense cold has long been known, but the source of the heat which enables them to preserve their flexibility within their pupa cases during the greatest extremes of temperature, still remains a mystery. Dr. Wyman lately stated, at a meeting of the Boston Natural History Society, that he had examined chrysalids of the common mud wasp, a species of *pelopæus*, and found that they were not frozen during the coldest weather.

On the morning of February 7th, 1855, when the thermometer had fallen as low as 18 deg. Fah., or 50 degrees below the freezing point, and had risen to 8 deg. Fah., the chrysalids were still unfrozen, and when removed from their pupa cases made obvious muscular motions. The pupa preserved its usual transparency and flexibility; but when crushed upon the surface of the material on which they rested, the fluids of the body instantly became opaque, and were congealed. Dr. Wyman has also examined the eggs of the moth of the canker worm, and found their contents unfrozen.

SECOND GENERATION OF THE HESSIAN FLY.

The following concise history of the second generation of the Hessian fly is from Dr. Fitch's admirable essay on this

insect: "About the first of May the fly appears, and deposits its eggs upon the same crop of grain that had already reared one brood, and also upon any spring wheat that is sufficiently forward for its purposes. The radical leaves of the winter wheat are now more or less withered, and the fly therefore selects the more luxuriant leaves that have put forth above these. The worm hatches, and again makes its short journey to its future home, at the base of the sheath; it consequently now nestles at the first and second joints of the young stalk, and is sometimes, though rarely, as high as the third joints. Even before the worm reaches the base of the sheath, it has frequently grown nearly its full size. The stalk has now attained such vigor and hardness that it is seldom destroyed by this spring attack. A slight swelling immediately above the joint, commonly indicates the presence of the larva beneath.

This is a fact which has been overlooked, or at least not distinctly stated by writers hitherto. We only find it noticed by Mr. Bergen, (*Cultivator* VIII, 133,) who informs us that in a crop of barley which was destroyed by the Hessian fly, many of the stalks were "at the joints, as thick as a man's finger." The insect is, therefore, a true gall-fly, although when but one larva succeeds in reaching the joint, the swelling caused by it is but little if at all apparent. More commonly, however, the straw becomes so weakened that it is unable to sustain the weight of the wheat head, and it accordingly bends down with the force of the wind and the rains. The appearance of a badly infested field, as harvest time approaches, cannot better be described than in the words of M. Kallar. The grain looks as though a herd of cattle had passed through it, so broken and tangled together is the straw. The worm attains its growth and enters its flax seed state about the first of June, and the flies of this second generation come forth about the last of July, and in August.

PARASITES.

The excessive multiplication of all kinds of insects is providentially kept within bounds by a well known law, which appears to assign to each species one or more destructive parasites, which prey upon them during all stages of their existence. Were it not for this wise

provision, some of the most prolific and hardy tribes, being exclusively vegetable feeders, would prevail to the exclusion of all others. The Hessian fly has numerous parasites, which have been studied with marked success by Mr. E. C. Herrick. Mr. Herrick's papers, published in the "American Journal of Science," (vol. XLI,) and in the Patent Office Reports for 1844, are most favorably spoken of by Dr. Fitch, who states that these papers evince the close and patient investigation which the writer has made, and the utmost carefulness in announcing nothing beyond what he had clearly ascertained.

In Dr. Fitch's essay, published in 1846, he introduces the following brief sketch of that part of Mr. Herrick's papers on the Hessian fly, which relates to parasites: "The Hessian fly is preyed upon and devoured by at least four other insects. When its eggs are layed upon the wheat leaves, they are visited by an exceedingly minute four-winged fly, (a species of *Platygaster*), which punctures the egg, and deposits in four or six eggs of her own. The Hessian fly worm hatches, grows and passes into the flax-seed state, with these internal foes feeding upon it. It now dies, and its destroyers in due time escape from the flax-seed shell. Three other minute four-winged flies, or bees, as they would be called in common language, destroy the fly when in its flax-seed state. The most common of these, by far, is Say's *Ceraphron destructor*. Alighting upon the wheat stalks, instinct informs them precisely where one of these flax-seeds lies concealed. They thereupon 'sting' through the sheath of the stalk, and into the body of the worm, placing an egg therein, which hatches to a maggot, lives upon and devours the worm.

Such are the means which nature has provided for preventing this pest from becoming unduly multiplied. And so efficient and inveterate are these foes, that more than nine-tenths of all the Hessian fly larvæ that have come into existence are probably destroyed by them, Mr. Herrick thinks, and we have strong reasons for believing that his estimate is within the truth.

It has been suggested that it is principally the second or spring generation upon which the parasites prey. The immense abundance of these parasites is easily ascertained by collecting the infested straw at harvest time, and secure-

ly enclosing it to preserve all the insects which hatch from it. Parasites in abundance will be obtained, and only occasionally a Hessian fly; whereas young plants taken up in April by Dr. Fitch, evolved only Hessian flies. The observations of a single season are not considered sufficient to establish a point like this, but coupled with the apparent difficulty of the short ovipositors of the parasites reaching the flax-seeds of the first generation at the first joint of the plant, and consequently *under* the surface of the earth to a slight extent, favors the suspicion that the second generation is chiefly infested by parasites, and the first comparatively free from them. The supposition appears quite in accordance with the operations of other agents limiting the produce of the first generation, for they have all the vicissitudes of a long winter, and the changeable atmospherical conditions of spring, to overcome.

ON THE MEANS THAT HAVE BEEN ADOPTED IN ORDER TO LESSEN THE RAVAGES OF THE HESSIAN FLY.

No one, even remotely familiar with insect economy, and the admirable purposes these minute creatures are designed to fulfil in preserving a proper equilibrium between the vegetable and animal world, will suppose that any remedy, properly so called, fitted to arrest the devastations of the Hessian fly altogether, could ever be put in general operation, even were such a remedy found to exist.

We can check, and partially avoid, their ravages, but we cannot obtain entire immunity at all seasons from the attacks of this insect. Where good husbandry prevails, we may indeed so far diminish their depredations that they will cease to be regarded with anxiety; but we shall be at all times liable to temporary invasions from other quarters where a careless, selfish or ignorant system of farming practice obtains, and also when seasons remarkably favorable for insect multiplication occur. These contingencies need only compel that degree of watchfulness which every farmer should continually exercise over all natural phenomena.

I now propose to enumerate the different methods which have been adopted in the United States and elsewhere to arrest the progress and destructiveness of this insect, and to state in a few

words the nature of the result obtained. As this part of the subject is one of much importance, I have not scrupled to dwell upon each so called remedy according to its merits. We must bear in mind too, that while endeavoring to secure a way of escape from the depredations of the Hessian fly, we do not blindly point out the road to certain destruction from the *wheat midge* on the one hand, and *rust* on the other.

1. *A fertile soil.* "We regard this as a primary and indispensable measure, and one which must accompany others in order to their full success." Good husbandry must necessarily play the first part as a remedial measure. And good husbandry implies a fertile soil. In other words the application of manure, deep ploughing, and the introduction of a judicious rotation of crops. The Hessian fly has in some instances been instrumental in compelling farmers to have recourse to a rational system of farming practice. Mr. Ezra L'Hommedieu, tells us in the *Genesee Farmer*, that in his county (Suffolk, N. Y.) the land was so constantly tilled without manuring that on an average not more than five or six bushels to the acre of wheat was raised. The Hessian fly put an end to this kind of husbandry, no other way being found to prevent injury to this crop by the insect than that of highly manuring the land.

We need not cross the frontier for examples of the encouragement which has been afforded to the Hessian fly and the wheat midge, during the past quarter of a century, to take up their abode in our midst. We everywhere find a practice similar to that related by Mr. L'Hommedieu obtaining in Canada, and there are many reasons why such a system should have prevailed before railroads opened up the country and created a market for produce, and few cared to look forward to the future condition of their farms.

By way of contrast to the foregoing paragraphs, it may be well here to notice the magnificent crops of wheat obtained in 1852, in Niagara County, N. Y., on the Canadian frontier; they are recorded in the Patent Office Report for 1853, by Mr. Hiram Powers of Lewiston. In 1849-50 Mr. William Hotchkiss had a field of six acres which averaged 63½ bushels to the acre, weighing 63 lbs. to the bushel. The seed was 'Soule's wheat.' Mr. Thomas Powell of the same

County, raised in 1853, 489 bushels from a field of seven measured acres; thus showing a yield of nearly 70 bushels to the acre. The circumstances under which this large yield was produced were as follows:—

In the fall a heavy dressing of swamp muck was applied. During the winter the field was used as a yard for stock, including a flock of sheep. In May was carted on a liberal coating of farm-yard manure which was immediately ploughed in very deep. Up to the 15th August, it was used at night as a sheep yard, when the field was again ploughed three times, until the soil was perfectly pulverized. Two bushels to the acre of 'Soule's wheat' was then sown broadcast, and covered with a light plough which completed the process. The variety known in Western New-York as 'Soule's Wheat' is in fact no other than the very best Genesee 'White Flint,' having a *stiff straw* and *maturing early*.

2nd. *Late Sowing.* "We regard it as one of the most efficient, as it certainly is the most facile of any that can be resorted to." "It is universally admitted that it is the earliest sowed fields which are always the most infested." Objections,—winter killing, rust and wheat midge. Remedies to these,—draining, protecting with litter or cow dung, and for rust see under that head. Time of sowing, about the last week in September, seed being properly prepared for reasons given elsewhere and in appendix. Depth of sowing, 2-2½ inches. Depth of ploughing 6 to 8 inches or more. In parts of Ohio late sowing is found to be a very excellent artifice, the varieties sown being the "Soule and white-blue stem;" these have nearly "driven the Illinois, Mediterranean, Red-chaff, Bald, &c., out of cultivation." (1852).

3rd. *Grazing.* This measure is alluded to as worthy of attention, "we cannot, therefore, but regard this as a most judicious and important measure if seasonably resorted to."

4th. *The Roller.* "No doubt this measure is a judicious one." It shakes off the eggs, and crushes the young worms; the condition of the ground must be particularly attended to before this remedial measure is employed.

5th. *Mowing.* A valuable proposal for exterminating the second or spring brood from a wheat field.

6th. *Fly-proof Wheats.* "That there

are any kinds of wheat which are perfectly "fly-proof" (to use a common and expressive term) as has been sometimes stated, we wholly disbelieve. Among famous varieties we find the following:

1st. *Underhill Wheat*—a strong silicious stemmed variety—flour good. 2nd. *Spelter Wheat*—flour indifferent. 3rd. *Clima Wheat*—ripens early and yields largely. 4th. *Mediterranean Wheat*, introduced into Maryland in 1837—very prolific, very coarse, ripens early, and a very general favorite in the United States. Is considered almost fly-proof, but soon becomes acclimated, and, although it improves in quality, it loses its "fly-proof" qualities. The Mediterranean wheat is a slight red chaff, with a long stiff beard, and a long red and very flinty berry. 7th. *The Etrurian wheat*—very prolific, very early ripener, and has none of the defects of the Mediterranean. A bald wheat, with a round plump white kernal, and very thin bran. 8th. *The White Flint Wheat*. "One of the choicest varieties of western New-York. Withstands the attack of the fly better than any of the other kinds there in use."

Mr. Rawson Harmon, in a report of experiments on the varieties of wheat cultivated in the State of New-York, and to whom a premium for the experiments was awarded by the N. Y. S. Agricultural Society, says the white flint variety has withstood the Hessian fly better than any other now cultivated. The solidity of the straw at the root gives the fly less chance of destroying it. "Some of the stalks of this variety will be so eaten (?) as to fall down, yet *mature the berry*; while in other varieties, after it has fallen from the injury of the fly, the greater part of it fails to mature.

Mr. H. G. Stewart, of Montrose, Lee County, Iowa, reports that the variety of winter wheat called the "Mediterranean," is the only kind known there which escapes the attack of the Hessian fly. At the same time, Mr. Stewart reminds us of the very important peculiarity of rapid deterioration which is frequently observed in change of climates. The Mediterranean wheat does not ripen in Iowa so soon, *by ten days*, as it did *five years ago*, and is consequently more liable to rust and the attacks of other wheat pests. The white blue-stem is also fast deteriorating in the State of Pennsylvania. "Our crops this year fall below ten bushels to the acre."

Certain varieties of wheat possess the property of 'tillering' to a much greater extent than others under the same or similar conditions. It is evident that power of throwing out fresh stalks is one of great importance in resisting the autumn attacks of the Hessian fly. Certain stems are sacrificed to its ravages, these are replaced by others which shoot out after the first stems are weakened or destroyed, and so preserve the crop from the autumn attack, while it is well known that on good soil the spring brood is not half so destructive as its predecessor. Tillering is largely increased by room, and limited by crowding. Late tillering retards the ripening of the crop, increases the danger of rust and the midge, and deteriorates the quantity of the grain. Fall seeding recovers the tendency to tiller by occupying the ground, and thus hastens the maturity of the crop.

The Chidham Wheat, introduced by the Secretary of the N. Y. S. A. Society into America in 1851, and distributed by him in various localities, fulfils the condition of 'tillering' to a remarkable degree. "A remarkable feature in its character is its great multiplicity of stalks, many of which were counted, averaging from 50 to 60 to each stool." Cultivation has a vast deal to do with 'tillering,' so also has the variety of seed. This property is of importance sufficient to merit careful and exact inquiry into the best modes in which it may be made available. Mr. Lance, of Blackwater, Bagshot, England, obtained from one seed by subdivision and cultivation, 43,000 grains.

In a Report furnished to the Patent Office, dated February 5th, 1855, "on the seeds and cuttings recently introduced into the United States," a variety of wheat from the central part of France is highly recommended for trial. It is named "Early Noé Wheat" (blé de l'Île de Noé) after M. de Noé, who first introduced it into France. It is hardy and productive, has the property of ripening some days before the common sorts. It is generally known in the parts of France, where it is cultivated by the name of 'blé bleu.' This property of ripening early is of *immense advantage* if coupled with a strong, flinty stem, as one plant will then furnish two highly important qualifications required to resist the *Hessian fly*, the *wheat midge*, and *rust* conjointly. (Para. 224.)

7th. *Steeps for the Seed.* "Much lies within the compass of human instrumentality to accelerate the growth of vegetation, by means of this kind." It is probable that a great advantage in many respects will be found to flow from a judicious adoption of this artifice. Not only is growth accelerated, but the steep may be made to possess great fertilizing properties; and steeps are constantly employed as a preventive to smut.

Mr. Pell, of Pelham, N. Y., prepared his seed wheat by soaking in brine, scalding with hot water containing common salt, mixing with pearl ashes, and when distributed nicely over a barn floor by sifting a composition containing charcoal dust, guano, sulphate of ammonia, and various other mineral ingredients over it. It was sown at the rate of two and a half bushels to the acre; at the expiration of fifteen days the wheat was so far above ground as to be pronounced by a neighbor far in advance of his which had been sown in the usual way on the first of September, nearly four days earlier. The crop weighed 63 lbs. per bushel, and was eminently rich in gluten, containing 18 per cent. The yield per acre was about 70 bushels.

In another part of this essay a steep for wheat as a preventive to smut is noticed, (par 230) and it may be remarked here that the following proportions will serve the purpose:—Two and one half pounds of sulphate of soda (Glauber's salts) dissolved in one gallon of water, will serve for ten bushels of wheat; the moistened or soaked grain may be dried with quicklime. Arsenic and sulphate of copper (blue vitriol) should be avoided; both are poisonous, especially arsenical compounds.

In steeping or pickling wheat in strong chamber ley, a practice both common and beneficial, the use of lime for drying should by all means be avoided. Gypsum should be employed instead; but of all substances, finely powdered charcoal, as a most efficacious absorbent of the ammonia of the urine, is to be recommended.

8th. *Oats as a Decoy.*—The oats being ploughed in after the deposition of the egg—"if the fly will deposit its eggs upon oats." This remedy is equivalent to late sowing.

9th. *Wheat as a Decoy.*—If two or three acres across the middle of a large field be sowed with wheat about the middle of August, all the flies in the vicinity

will be attracted to this point, and there retained, so that it will be safe in ordinary seasons to sow the remainder about the middle of September. Plough the early sowed wheat under, and bury the unhatched eggs and maggots. In years when clouds of Hessian flies migrate, it is evident that this remedy would be of little avail, if the season were at all late. The measure should receive a fair trial from some intelligent wheat grower, in a district suffering under this pest.

10th. *Deeply covering the Seed.*—"Good as a subordinate measure, but it falls far short of ranking as a primary one." I am much inclined to doubt the value of this remedial measure; late and shallow sowing, with a properly steeped seed, and deep preparation of the soil should go together. The most trustworthy experiments have shown that deep sowing is destructive to a very large majority of the seeds committed to the ground. Out of 150 seeds of wheat sown at different depths, 140 of the number came up from a depth of 2 inches, 40 from a depth of 4½ inches, and 14 from a depth of 6½ inches. Another experiment gave the following result:

11th. *Procuring Seed from uninfested Districts*—of no utility; the eggs are not deposited in the seed. The only possible value of this artifice would be to obtain early varieties of wheat, or seed from a considerable distance (two or three degrees) to the south of the locality where it is intended to sow, whereby to insure it maturity, for a few years, some days earlier than acclimated varieties.

12th. *Sun-drying the Seed.*—Germination retarded; therefore equivalent to deferring sowing for a few days.

13th. *Drawing Elder Bushes over the Plants.*—A fancy.

14th. *Sprinkling Salt, Ashes, or Caustic Lime over the Young Plants.*—This top-dressing serves as a manure, and nothing more. It will strengthen the plant and accelerate the period of its maturity.

15th. *Burning and Ploughing up the Wheat-stubble.*—Dr. Fitch says: "We commenced our account of this remedy, impressed with a belief that it was the best that had ever been proposed; we close it, persuaded that it is the very worst." By burning the stubble, you burn the parasites of the fly, which, as has been shown, destroy nine-tenths of each generation.

We cannot give assent to the very sweeping denunciation of this remedial measure, contained in the foregoing sentence. It is quite clear that *before* the parasites accumulate so as to overcome the Hessian fly, the artifice is worthy of adoption. With the exception of certain seasons, the ravages of the fly are local, and may, therefore, be arrested by this artifice. It has received so many favorable notices from different quarters, that it is certainly worthy of trial. We subjoin an extract from the *Genessee Farmer* (1849) on this subject:

"This destroying insect is becoming more and more plenty over the whole wheat district, subject to slight variations through the effect exercised over them by the severe and open winters and frosts. That they are extremely local, and, when once colonized, do not emigrate far, when they can find a proper pabulum for existence near home, we have been a long time satisfied. A respectable and extensive farmer in Pennsylvania, states that he has, for ten years past, almost entirely prevented their depredations by burning over the stubble directly after cutting his wheat, and before they had changed from the larvæ to the winged state; while fields in his immediate neighborhood were destroyed.

"This view of the subject is remarkably confirmed by a case related to us a few days since, by one of our best wheat farmers in this section. His crop was so entirely destroyed that it did not pay for harvesting; and the land being in fine tilth, he resolved to follow it again with wheat, and consequently turned it over pretty soon after. About the 1st of September he commenced cross-ploughing; and when about half the field was finished, the other half looked in such good order that he omitted ploughing it, and sowed his wheat. The next summer the grain was so destroyed on the part twice ploughed, that he did not harvest it; while the other was a full average crop.

"The *rationale* is plain. The insect, when in the worm state, was ploughed under with the stubble, and on that part twice ploughed was brought up again, hatched out, and attached their eggs to the young wheat; while in that part but once ploughed they were buried beyond their power of getting to the surface, and were destroyed."

In 1851, Mr. John Delafield, in a

general view and agricultural survey of the county of Seneca, N.Y., taken under the direction of the New-York State Agricultural Society, tells us that the Hessian fly has *ceased* to be a formidable enemy there, probably for two reasons: "First, the period of sowing the seed-grain has been retarded until a period too late to offer a nidus to the fly; and, second, the soil is better prepared, by due fertility, to give the plant vigor to resist the influence of the larvæ."

The remedial measures which have been enumerated, either imply the presence of the Hessian fly in destructive abundance, or contemplated invasions from neighboring districts. They may be thus briefly summed up for *winter wheat*:—

1st. Have your soil in good heart and order.

2nd. Drain as much as is consistent with true economy in Canada, and plough deep.

3rd. Sow late an approved flinty-stemmed variety, and an early ripener.

4th. Prepare the seed for rapid germination and growth, by steeping, and afterwards drying in some special manner.

With reference to steeping wheat before it is sown, there can be no longer any doubt as to the benefit it confers, when properly done both in accelerating germination and future growth, and in preventing, or greatly diminishing, the affection of smut.

The recommendation, "Sow late," to avoid the Hessian fly, appears to be diametrically opposed to the advice to avoid the ravages of the wheat midge and that dreadful scourge "rust." It is to meet the case of a simultaneous presence or appearance of both Hessian fly and wheat midge, that late sowing, with a forcing preparation of the seed, is recommended and practised. If acting with special reference to an individual insect, one would sow late to avoid the Hessian fly, or early to avoid the wheat midge; but it is very manifest that, under ordinary methods of culture, if both insects prevail (and they may now *always be expected*) during the same year, or if they succeed one another, the crops must suffer from the attacks of one of them. Therefore, it is better to be ready for both contingencies; sowing late on well prepared land, to avoid the Hessian fly, and anticipating the arrival of the midge by stimulating your crops to

attain, before winter sets in, the same development of parts which they would have acquired by being a fortnight longer in the soil; taking care, at the same time, to select a good variety of seed, flinty-stemmed, and an early ripener, and one which is *not* acclimated. This subject of ripening early will be more particularly alluded to in the chapter on "the wheat midge."

With respect to spring wheat, it has been urged that the selection of varieties which can be sown so late as to escape the May attack of the Hessian fly, the June and July attack of the midge and rust will cover all contingencies. Can this be accomplished? Have we such a variety of wheat as will satisfy these conditions? The late lamented Mr. Wade, of Cobourg, recommends the "Fife wheat." The Fife wheat, or, as it is called in the townships east of Lake Simcoe, Scotch wheat, is there a great favorite. It is not "liable to rust," may be safely sown much later than many other varieties, and is at the same time very productive.

THE CAUSE OF THE SPREAD OF THE HESSIAN FLY.

A point of interest in the history of this insect is the stated apparent periodical character of its visits. A little reflection will show that this seeming regularity may be attributed to causes which are independent of one another, but yet have an important bearing upon its multiplication or diminution. The first, and probably the most influential, relates to the general wide-spread cultivation of its favorite food; the second to the favorable meteorological conditions of the season—these stimulate and encourage its increase, the third affects the diminution of its numbers, and involves the excessive multiplication of the parasites which prey upon it.

Under the article "Wheat midge," paragraphs 158-9, a much more apparent periodicity is observable in the successive appearances of that insect. The following notice of the excessive appearance of certain insects in Europe, the United States and Canada, with the character of the season during and immediately preceding their visit, may prove interesting. They are not advanced with any expectation that a near approach to a clue to the cause of the greater or less distribution of the Hessian fly in different years will be attained, but rather to

direct attention to a class of extremely interesting natural phenomena which cannot fail to become of value as they accumulate.

(1) It has long been known in Germany that the race of pine beetles increased most in warm dry summers, followed by cold dry winters. "Hot weather shortens the period of transformation, and thus affording time for the maturation of the several broods, causes a superabundant number of insects to be found.

(2) The oak trees in Devonshire have suddenly appeared studded with gallnuts during the last three or four years, and in numbers so abundant as nearly to equal the leaves. The Hessian fly and wheat midge are true gall flies, and the sudden increase of one of their kindred giving rise to the common gallnut in countless multitudes, shows how universally the capability of rapid and unexpected increase is shared by different species of this allied generation.

In the communication to the writer, (before referred to) dated Feb. 2nd, 1857, Dr. Fitch says: "It has long been my opinion that the great multiplication of the insect depredators on wheat, and of insects generally, which take place in particular years, is caused in part, at least, by certain peculiarities of the atmosphere of that and of the preceding year. This subject is alluded to under several of the species in my reports. What those atmospherical peculiarities are, in the case of any particular insect, is yet unknown to us. One of the general laws relating to this matter, I think, will be found to be this—that whatever peculiarities of the season occasion a luxuriant growth of a particular plant, will also favor the multiplication of the insects feeding upon that plant. But we are here treading upon slippery ground. It is a very obscure subject, requiring an extended series of very careful observations to lead us to the exact truth. And in such inquiries as this we are very liable to be misled, and to mistake mere coincidences for established laws. For instance, if an insect has been observed in two or three instances to be very numerous, say, after an unusually wet season, we should confidently conclude such a season to be the cause of its multiplication. But it may perchance again show itself in equal abundance after a dry season. Authors have so often been humiliated by having their speculations

falsified in ways analogous to this, that I have felt disinclined to venture upon such precarious ground, except with the utmost caution. It is a most important topic, however, and all the facts which fall under our observation, having a bearing upon it, should be recorded, and in time such records will lead to correct theories in the premises."

There can be no doubt that the excessive and continuous cultivation of its favorite food, wheat, without rotation, has fostered, encouraged and cherished the Hessian fly, and indeed, all other wheat depredators, until they have become firmly established in the country, and always to be looked for and guarded against. Little or no rotation has been allowed to interfere with their progress. They have been provided with all situations of exposure or shelter in one locality or another, to insure the propagation of their species; and all that the sensible farmer can do to protect himself from the swarms which will continually be thrown off from the nurseries maintained through selfishness or ignorance in this country, is to adopt the artifices which will enable him to escape the attacks of the depredators.

It has been suggested that the name 'Hessian Fly' should be discontinued and the term 'wheat stem fly,' substituted for it. The change, however, is decidedly objectionable, on the ground that there exists in Europe an insect which has long borne the name of the 'wheat stem fly,' (*chlorops pumilionis*).

THE WEATHER, CROPS, ETC.,

IN NICHOLS AND VICINITY, TIOGA CO., N. Y.

EDITOR OF FARMERS' MAGAZINE:—The weather since the middle of June has been a majority of the time very hot and dry. We have had a shower every few days, but light, and followed by a scorching sun and drying wind, that had a strong tendency to dry up vegetation. All small streams here are now dry, and have been for weeks, and a number of springs have failed in a few days, and a majority of fields have no more greenness on them than they had the middle of April, being a drab color. Our wheat harvest was very good on some farms, while on others nearly destroyed by rust and the midge, H. Tritica, com-

monly called the weevil, and erroneously so called. As far as I have been able to ascertain, the wheat has been less injured by the insect than former years. Mediterranean wheat fares the best of winter varieties. There has been a number of fine fields of Spring wheat raised in this town; those that sowed the last of March and first of April had their wheat about destroyed, as I expected, by the midge¹, while others that sowed about the middle of May had from 20 to 35 bushels per acre by sowing late; the wheat appears to come forward too late for the midge. I have heard of a few fields of Spring wheat, of a variety called the Isa wheat, that is said to surpass any other kind for a large yield, being very plump. In this vicinity, low, rich, moist soil is more subject to be injured by the midge than on a dryer, higher, poorer soil.²

The rye crop, as far as I have been able to ascertain, was very good, a majority of fields very heavy. I had about 3½ acres; a number of farmers thought heavier than they had ever seen before. There was over 1500 sheaves, very large, making eleven large wagon loads. The field that this rye was raised in was an old pasture, almost wholly run into white Daisy or Bulls-eye. When I broke it up the last of June, and part of July, there was little to be seen but the Daisy. The last of August and first of Sept. it was crossed; and sown on the 10th or 11th. Ploughed each time between six and seven inches deep, generally seven.

The corn crop started for a larger yield than before, in a number of years, but the dry weather injured every field, more or less. A number of hills, with hardly an ear of corn, generally a large growth of stalks. There is some eight or ten varieties raised in this vicinity. Corn was injured some by the frost on the 24th of August. Vegetation suffered the most along streams, and near the head of small creeks; the tops of hills generally escaped. The oat crop on the Susquehanna flats, and other large flats, was a

beautiful growth of straw, and quite a large yield, but on the hills many fields were short and thin. The practice of many farmers sowing three years one field in succession, is enough to make short crops. I am told by a large dealer that a majority of oats fall short ten bushels on a hundred in weight, caused most probably by the hot, dry weather, and bad farming. A large amount was sown.

The buckwheat crop, owing to the very hot, dry weather, got a very bad start, came up slow, and was consequently very uneven. A very large amount as usual was sown. The crop was cut off about one-half last week by the scorching dry weather, which I see now has blasted half the grain. Buckwheat here is generally a large crop, often yielding from 30 to 40 bushels per acre. I have frequently raised 35 bushels to the acre, and a man near Owego raised, it is said, 50 bushels per acre, but I think it doubtful.

The hay crop varied very much. New rich meadows gave a fine yield; old generally light. New seeded is most sure. A number of old meadows, not yielding more than 3-4 ton per acre, and that full of five-finger. All vegetation has been injured more or less by the grasshopper, especially fifteen or twenty miles north of here, whole crops are destroyed. An old gentleman told me the other day he saw a fine field of tobacco in this town considerably eaten by the grasshopper. He saw them lying dead in among it. He concluded they were killed by eating the weed. Think of that, ye tobacco chewers;—*grasshoppers kill themselves eating the weed.*

I discovered to-day rather a novelty. The English dumb dwarf bean, mixing with a species of poll bean, and they were planted twenty or more feet apart. The poll bean is a large, plump, red and white bean, color of the mixed up calico fashion. The English bean is a yellow-

ish brown, and had taken on part the color of the calico beans, and had altered in shape and appearance, generally appearing like a new species. I shall investigate the matter further.

ROBERT HOWELL.

Nichols, Sept. 15, 1858.

1. We believe this writer means the Hessian Fly.
2. The name, if our compositor reads it rightly, is new to us.
3. We advise our correspondent and all others, to read the long article in this No. on the enemies of wheat, and to learn to call them by their right names.

SOW NONE BUT THE BEST SEED.

THE intelligent cultivator of the soil will never use any other seed than the very best; he will never procure poor, inferior trees for his orchard, if good ones can be had at any price; nor will he buy an animal of any description, from the horse to the hog, as a breeder, that does not possess superiority in some degree over the common herd.

Great injury results from year to year to the staple crops of the country, from the use of inferior seed. A farmer, from causes that he could not foresee or prevent, finds his wheat crop in the main defective, or not quite perfect in the grain, and yet for marketing is nearly equal to the best. He is about to sow for his next year's crop, and a large quantity of seed is required. He knows of a neighboring farmer who has been entirely successful in growing a crop of perfect grain; but from motives of delicacy or pride, if nothing else, would no more think of paying his neighbor money for seed, for the very crop which he claims to be able to propagate as well as the best, than he would for instructions as to the proper mode of holding the plow. He therefore prefers to use his own imperfect seed; and, though he does it with misgivings as to the result or effect upon his crop that is to follow, still he would not take that trouble to do that which his own judgment teaches him would be the better course.

If, therefore, the following crop should turn out defective in consequence of using poor seed, ought such a man to be surprised at the result? On the contrary, we believe it is just his due; just the result he might have expected from his parsimony and false pride. We repeat, that no intelligent cultivator of the soil will allow any motive to interfere

to prevent his procuring at all times the the most perfect seed that can be obtained, no matter at what trouble or cost. Greater benefits result from a careful attention to this principle, and its application, than the unthinking are

willing to admit; but with those who have made it a matter of experiment, no argument can swerve them from a belief in the advantages of sowing none but the best seed.—*Cal. Culturist*.

Horticultural.

CALENDAR FOR OCTOBER.

FLOWERS.

THE *Chrysanthemum* will now be coming forward for bloom. Care should be taken to support them with sticks to guard against the effects of wind. Manure water will increase both size and color of the flowers.

Greenhouse plants that have been in the open borders, should be replaced in pots and prepared for returning to the house for winter protection. It is best to repot them early and let them stand in a north aspect out of doors for some days before putting them in the greenhouse.

Tender roses in the borders should also be repotted, but this should not be done until the first frost has checked their growth. Then take them up and put them in by the heel in a shed or frame where they will be secure from severe frost, and they can be repotted at your leisure. Camellias and all greenhouse plants that it is wished to bloom, in the early part of winter should be at once housed. And all greenhouse plants must be taken in at the approach of night frosts.

Frames for half-hardy border flowers should be got ready to keep them for planting out in spring. These may now be filled from the borders with such kinds as are most esteemed. Give air daily to these frames by removing the lights in fine weather and by elevating them in wet. Keep the plants as dry as possible, to prevent mildew, and from

time to time remove all decayed leaves.

New plantations of flowering shrubs may be made, and such as have become overgrown may be rearranged any time from the middle of the month until winter sets in.

Orchards and fruit trees are pruned more beneficially at this season than in spring, and the sooner now the better.

KITCHEN GARDEN.

Spinach may still be sown for succession in spring.

Lettuce should be transplanted from the seed beds into frames for use in winter and early spring.

Cabbage may be sown (the *Early York* and *Early Ox-Heart*) in frames to protect for planting out in the breaking up of the winter.

Celery.—Attend to earthing up.

Strawberry beds recently made will require weeding, and before winter sets in strew some hay or litter thinly over the beds.

Dig up and secure all crops now at maturity in dry weather and begin with those most susceptible of frost, as *Beets*.

Mushroom beds may now be made.

Raspberries, *Currants* and *Gooseberries* may now be planted.

Asparagus beds may be made and planted, and old beds should be cleaned off, and dressed for the winter.

Onions sown to stand the winter should have some litter thrown over them for protection.

Turnips, where sown in rows, will re-

pay in size for cultivation between them.

Rhubarb plantations should have a good dressing of any coarse manure before winter, which will both increase the size and the earliness of the produce next spring.

As the garden ground is cleared of crops, remove all rubbish to the manure heap and dig up the ground in ridges to receive the benefit of the winter's frost.

THE EGG PLANT.

THE MESSRS. Harrington, of the well-known and excellent Boys' School at Westchester, N. Y., have sent us a basket of this fruit, with directions how to cook them, and we have found that, cooked in their way, as in several others, they are good. Well, what do our readers care for all that? Nothing we presume. But we want to tell them what the Messrs. H. say about growing this plant.

They say it is the most certain crop they can put into a corner of their garden. Like the farmer, who could grow corn with the Lord's blessing, but potatoes "any how," they regard this fruit as nearly above all contingencies, if started early and planted rightly and then kept clean. Their way is to dig holes about a foot and a half deep, mix four or five shovels of manure as the holes are filled up, transplant early in May, and stir the ground often through the summer.

As soon as the first egg-shaped fruit is large enough, it is to be picked off, that the later may take the strength of the plant and come on in its turn. Here and there one, as with cucumbers, may be left for seed. They say with a single plant in a hill (there should never be more) they can easily get from a bushel to a bushel and a peck from each hill. The hills require to be four feet apart or a little more each way. At 4 feet 1½ inches there would be at the rate of 2,560 hills to the acre, or 16 to the rod, which at their estimate would give at least 16 bushels to the rod, or 2,560 bush-

els to the acre, very profitable at the rates they have heretofore sold in this city, though the cultivation is somewhat expensive, as good ground, in high order and four or five extra shovels of manure to the hill, making perhaps 20 large loads to the acre, is required.

Their way of cooking may not be new to our readers. We give it from memory, and, as we are not at home in the mysteries of cooking, with some liability to blunder;—cut into very thin slices; soak a few minutes in salted water; cover with batter; and fry in lard (not such soap-grease as our city dough-nuts are sometimes fried in, but the pure article, such as the farm-house always furnishes) till uniformly brown.

Some prefer them sliced thicker and fried, or boiled, as we should perhaps say, in lard without the batter. This mode reminds us of a dish the French women get up with wonderful niceness, and sell for a half franc a plate in the streets of Paris—potatoes sliced into hot lard and so managed as not to come out browned, but blistered and almost as white and crisp as parched corn. If the hungry eater does not pronounce it a good lunch, he must be hard to please; but it could hardly be considered a healthy dish to indulge in often and freely; and we should suspect the same of the egg plant cooked in that way.—Ed.

AMERICAN POMOLOGICAL SOCIETY.

THE seventh meeting of the American Pomological Society was commenced yesterday morning in Mozart Hall. The last meeting was held in Rochester two years ago. Representatives were present from seventeen States.

The Hon. Marshall P. Wilder, President of the Society, took the chair. Delegates from other societies presented their credentials and members paid their dues.

The following extracts from the President's address, give a pretty good idea of this Society:

"GENTLEMEN: I rise to announce the

opening of the seventh session of our National Association, and to perform a service which its Constitution devolves upon your presiding officer. Ten years have completed their course since the organization of the American Pomological Society, in this commercial emporium. Some who were active in its formation, have fulfilled their earthly mission and now rest from their labors. Downing and others have passed away; but their names are still fragrant in our memories; and their works still live. May they live forever to enlighten and bless their fellow-men.

"The representative arts of ancient Egypt contain delineations of delicious fruits, afterward cultivated in the hanging gardens of Ninevah, the interval lands of Babylon, in the vales and on the mountains round about Jerusalem. In Greece, Homer sung of the cultivation of fruit trees; Xenophen, Cato and Virgil mention, among other varieties of fruit, the pear; and Pliny, in enumerating the fruits cultivated at Rome, mentions twenty-two sorts of the apple, eight kinds of the cherry, more than thirty kinds of pears, a large number of plums and grapes, to which the soil of Italy was then and is still specially adapted. He also speaks of several other kinds of fruits, and of the perfection which the art has attained in his period; but it is a significant comment on that perfection when he adds that it was then a long time since the production of any new variety.

"Since the organization of this Society in 1848, its example has been followed by the establishment of the British Pomological Society in London; Société Pomologique de Belge in Brussels; and of other similar organizations located at almost every point of our Union—all working in harmony for the attainment of the most reliable and important results. These aggregating the experience of the wisest and best cultivators, creating a taste for this useful and divinely-appointed art, proving what varieties are suited to each particular locality, and what to general cultivation. These, through the influence of the Horticultural and Agricultural press, are introducing fruit culture from the Canadas to Mexico, and from the Atlantic to the Pacific, bringing its numberless enjoyments within the means of the most humble cottager, and multiplying the luxuries which crown the tables of the opulent.

The large, luxurious and abundant fruits in the State of California, in the Territories of Oregon and Washington, already rival, and in many instances surpass those of our older States, indeed of the countries of Europe.

"The transactions of our last session have been published generally by the periodical press of the United States. They were also translated and published in some of the languages of Europe; and your Catalogue has already become a standard in American Pomology. This it should be your object, at each biennial session, to revise, perfect and promulgate, as the best means of preventing those numerous impositions and frauds which, we regret to say, have been practiced upon our fellow-citizens by adventurous speculators or ignorant and unscrupulous venders, who sometimes use recommendations, hastily and injudiciously given, or surreptitiously obtained, greatly to the injury of the purchaser and fruit-grower, to the dealer and the nurseryman, and to the cause of pomology."

On the question whether pears can be grown at a profit, President Wilder adduced the following facts, admitting that such results are in some measure exceptional and not general, but at the same time arguing must forcibly as we think, that the causes of failure in other cases are mostly of a kind that perseverance and experience yet to be acquired will fully overcome. He said;—

"The Fruit-Growers' Society of Western New-York, composed of gentlemen of deserved integrity and celebrity, some of whom are on this floor, and competent to defend their report, furnish the following instances from that section of the State.

"Three White Doyenne pear-trees, owned by Mr. Phinney of Canandaigua, one of them small, produces \$50 to \$60 worth of fine fruit.

"A tree of the same variety, owned by Judge Howell of same place, 70 years of age, has not failed of a good crop for 40 years, averaging for the last 20 years 20 bushels annually, and sold on the tree at \$60 per year. This tree has produced for the New-York market, \$3,750 worth of pears.

"Three large trees owned by Judge

Taylor, of same kind, yielded, in 1854, 11 barrels, and sold for \$137.

"A young orchard, owned by Mr. Chapin, of four hundred trees, eight years from planting, which produced in 1853, fifteen barrels, selling in New-York for four hundred and fifty dollars, and in 1854 fifty barrels, yielding him one thousand dollars."

"Similar results have been realized in the State of Massachusetts.

"William Bacon, of Roxbury, has about one acre devoted to the pear. The oldest trees were planted eighteen years since, but more than half within a few years. From two trees, the Dix and Beuree Diel, he has realized more than one hundred dollars a year, and for the whole crop, over one thousand dollars a year.

"John Gordon, of Brighton, has three and one fourth acres in his pear orchard. This was commenced in 1841, there being only eight trees on the ground. There are now twelve hundred trees, planted in various years, more than one half of which since 1854. The amount received for his crop, from that date to the present, has been from five to six hundred dollars a year, but he remarks, 'If I had confined myself to a judicious selection of varieties, it would now bring me two thousand dollars per year.'

"William R. Austin, of Dorchester, Treasurer of the Massachusetts Horticultural Society, has an orchard of between five and six hundred pear trees, mostly on the quince root. These trees are about twelve years of age. One hundred are Louise Bonne de Jerseys. They commenced bearing about three years after planting, and have borne regular crops ever since. They are very healthy, and only eight of the whole number have died since the orchard was commenced. No account of the crops were kept until the year 1851, but Mr. Austin's sales for the next six years amounted to \$3,408.

"The Messrs. Hovey of Cambridge have a very large collection of bearing pear-trees. From two rows, 210 trees, grafted on the quince, the crop has amounted, some years, to 25 barrels.

"John Henshaw of Cambridge, planted about an acre of land principally with pears on the quince. On the fifth year thereafter, he gathered 120 bushels of pears, 70 bushels of which he sold at \$5 to \$6 per bushel.

"A Buffum pear tree at Worcester, be-

longing to Mr. Earle, yields annually from \$30 to \$40 worth of pears. Mr. Pond of the same city planted in 1850 350 Bartlett pear trees, one year old from the bud. In 1857 he sold from these trees 50 bushels of pears at \$5 per bushel, or \$250 for the crop.

"Similar instances of success, in these and in other States, might be multiplied, if time would permit, to prove the age, health, and profit of the pear tree. So deep has the conviction of this truth become, and so uniform the success, that instead of planting trees as in former times, by the single tree or the dozen, cultivators now plant orchards of hundreds and thousands, in a firm and reasonable expectation of large income."

Mr. Wilder dwelt upon the duty of pomologists to supply the people with good fruits at such a price that they might become, not the condiments, but the food of the people. After applying this idea to the pear and other large fruits, he said:

"Our reasoning applies peculiarly to the grape. I hail with great pleasure the wide-spread interest of cultivators in producing new and choice varieties of this fruit, which, ere long, will put us in possession of kinds not inferior to the best European sorts. On this subject I had hoped to enlarge at this time, and to have shown its importance as a means of increasing individual and national wealth. The time is within the recollection of some present when our first native grapes were brought into cultivation, as the Catawba and Isabella. These are now so common in some sections that any man, if he chooses, may sit beneath his own vine, and pluck its rich clusters. Honor to the memory of those who introduced these valuable sorts! Success to those who are multiplying new and improved varieties from them! We know gentlemen in Massachusetts who have thousands of seedlings under cultivation. The same may be said of other sections of our fair land; and the day is fast approaching when from our eastern to our western shores, the tops and slopes of our hills shall be covered with clusters richer than those of Eschol, and, like them, give assurances of a land of promise. May that day soon come, when our markets shall vie with those of Italy, Sicily, and other grape-growing countries, where this luscious fruit is not only a luxury for the opulent, but the food of the humblest peasant."

On the pure and elevating influences of the fruit-grower's employment, Mr. Wilder said;—

And how delightful is the employment of the pomologist, going forth among his well-trained trees,

"To visit how they prosper, bud and bloom."

His love is always young and fresh, ever approaching them with keener relish and increased affection. They, in return, recompensing every kind attention, "clap their hands for joy," and like those flowers of Paradise touched by the fair hand of Eve, *more gladly grow*.

This art is second to no other in rank, in utility, and pleasure. No calling is more consonant with the refinement and happiness of a rational being; none better calculated to develop the purest sentiments of our moral nature. "The garden," says Lord Bacon, "is the greatest refreshment to the spirits of man, without which buildings and palaces are but gross handy-works." "Nothing," said the immortal Webster, "is too polished to see its beauty, nothing too refined to be capable of its enjoyment. It attracts, gratifies and delights all. It is a constant field where all sexes and ages, where every degree of taste and refinement may find opportunity for gratification." So though Syrus of Persia, when he boasted that he planted his trees with his own hands; So Pliny, when he gloried that a Roman cherry was named in honor of his family; So Solomon, guided by Divine wisdom, made for himself as a source of his purest pleasure, "gardens and orchards, and planted trees of all kinds of fruits." So Dioclesian, stated with the highest honors of regal power, when he wrote to Maximian, "Were you to come to Salona and see the fruits which I cultivate with my own hands, you would no longer talk to me of Empire." So say we and all others, who, having retired from the thoroughfares of the busy mart, and from the conflicts of political ambition, have drunk from these pure fountains of social joy, and eaten these ambrosial fruits of rural life.

No wonder then that the praises of this pursuit have been celebrated in prose and verse; from the humblest peasant to the highest potentate; from the heathen mythologist to the sweet Psalmist of Israel.

From scenes in the garden, from Eden

to Gethsemane, have been drawn the most exalted and sublime conceptions, the most sacred and divine communings that have ever moved the human heart. The good Wilberforce, long after he was unable to walk, was drawn daily in his carriage to his favorite grounds, where he could commune with his Creator and admire the beauty and glory of his works. "I am," said he "very fond of the garden. The corn and vegetables I look upon as the bounties of Providence, but the fruits and flowers as his smile." This sentiment animates the breast of childhood, grows with our growth, and strengthens with advancing years:

"Maintains its hold with such unflinching away,
We feel it e'en in age, and at our latest day."

The more I investigate the laws of vegetable physiology, the more I am filled with wonder and reverence at the benevolent provisions of nature—at the instructive lessons which she teaches. Our trees—from the opening bud to the golden harvest,—from the laying off of their gay autumnal livery, and during their rest in winter's shroud, waiting a resurrection to a new and superior life, are all eloquent preachers, proclaiming to our inmost soul:

"The hand that made us is Divine."

Mr. Wilder concluded his address by resigning his position as President. By resolution, however, offered by Mr. T. W. Field, he was prevailed upon to retain the position for another term.

After a recess of an hour, the Society elected the following gentlemen as its officers for the two years to come:

President—The Hon. Marshall P. Wilder of Massachusetts.

Vice Presidents — S. L. Goodale, Maine; H. J. French, New-Hampshire; Samuel Walker, Massachusetts; Fred. Holbrook, Vermont; Stephen H. Smith, Rhode-Island; A. S. Monson, Connecticut; Charles Downing, New-York; William Ried, New-Jersey; Hartman Kuhn, Jr., Pennsylvania; E. Tatnal, Delaware; Charles B. Calvert, Maryland; Yardly Taylor, Virginia; Walter L. Steele, North Carolina; A. G. Summer, South Carolina; Richard Peters, Georgia; Jos. L. Moultrie, Alabama; Dr. M. W. Phillips, Mississippi; Jas. S. Downer, Tennessee; Lawrence Young, Kentucky; A. H. Ernst, Ohio; J. C. Holmes, Michigan; J. A. D. Nelson, Indiana; J. W. Felt, Louisiana; Thomas Affeck, Texas; R. C. Overman, Illinois; N. J. Coleman,

Missouri; George Worthin, Arkansas; Robert Avery, Iowa; J. C. Brayton, Wisconsin; Simpson Thompson, California; Joshua Pierce, District of Columbia; Edward Hunter, Utah; Amasa Stewart, Minnesota; C. B. Lines, Kansas; William Davenport, Oregon; Hugh Allen, Canada East; James Dougal, Canada West.

Secretary—Thomas W. Field, Brooklyn, N. Y.

Treasurer—Thomas P. James, Philadelphia, Pa.

Executive Committee—The President and Vice Presidents ex-officio; W. D. Brinckle, M. D., Philadelphia, Pa; T. W. Field, Brooklyn, N. Y.; M. B. Bateham, Columbus, Ohio; L. E. Berckmans, Plainfield, N. J.; F. K. Phoenix, Bloomington, Ill.

It was determined to hold discussions from 9 A. M. to 1 P. M., and from 2 to 5 P. M. to-day and to-morrow.

Mr Field then read a paper by Mr. L. E. Berckmans, advocating the culture of fruit, and especially encouraging faint-hearted fruit-growers to find out what fruits are suited to their locality, and then to cultivate the most rigorous of these. He stated that he had seen more good fruit at one exhibition in Rochester or Boston, than in any twenty exhibitions he had seen in Europe. Let them not be disheartened by any obstacles. None could be greater than the odium in Europe, but that had been overcome.

Mr. Field then read a paper on the adaptation of varieties of pears to different localities. He had never seen a single universal soil. The finest and most delicate were most general in their adaptation. Not more than half the varieties of pears were good for any single locality. He had been much interested in tracing out varieties which were brought over by the Huguenots. In conclusion he mentioned some instances of successful hybridization.

The President read a paper from Mr. J. J. Thomas. He says that the roots of his dwarf pear trees, two years old, cover the diameter of eight feet. The old supposition has been that the roots extend no further than the tops. But the tops of these trees were only two feet in diameter. Peach trees ten feet high were doubled in their growth by heaps of manure fifteen feet distant, and quadrupled by heaps seven feet distant.

Mr. Walker of Roxbury spoke in favor of the publication by the Society of a

catalogue of all the fruits which have been cultivated in this country. Then he proposed that they should have local catalogues for each State of good fruits, both for family use and for the market. He would have the catalogues give full descriptions and outlines of these fruits, and would have them completed Jan 1, 1860. Such catalogues could be sold for fifty cents; he would guarantee a sale of 20,000 a year.

The business committee reported that the Society should in its day discussions first take up fruits which promise well, and then the additions to the list.

The treasurer's report was read; it shows \$428 94 in the treasury, after an expenditure of nearly \$400.

Conversational discussions are to be held in the evening. Last evening the subject was Pear Culture.

THE DISPLAY OF FRUITS.

The display of fruits, most of them brought by members of the Society, now on exhibition at Mozart Hall, is much superior to any ever before given in this city. Prominent in the exhibition is the most attractive display of apples we have ever seen—77 varieties by Westbrook and Mendenhall of Greensboro', N. C. They are even more appetizing than the splendid collections of pears which occupy nearly two-thirds of the tables. "A Strawberry apple" from Louisiana appears to justify its name. There are pears of all desirable and most undesirable varieties; grapes, among them beautiful specimens of the Diana, Rebecca, and Delaware; and some immense melons, which appear to be muskmelons in every thing but size. The principal exhibitors are:

Messrs. Ellenger & Barry of Rochester, who have 450 acres in trees, exhibit 200 varieties of pears and 37 of plums. Finer specimens of some of the pears have seldom been exhibited.

The Hon. Marshall P. Wilder of Boston exhibits 144 varieties of pears, of the most beautiful size, shape and color.

Wm. Ried of Elizabeth, New-Jersey, exhibits specimens of 104 varieties of pears.

Mr. Wm. L. Ferris of Throg's Neck exhibits 55 varieties of pears.

Mr Sheldon Moore, Kenningston, Conn., exhibits 5 varieties of apples.

E. M. Warren, Chelmsford, Mass., 8 varieties Summer and Fall sweet apples, 10 Fall and Winter sweet apples, 24 Fall

and Winter sour apples, 30 early and Summer sour apples.

Messrs. Sharp, Smith and Manchett, Syracuse, exhibit 124 varieties of pears.

J. D. Ingersoll, Illion, Herkimer County, N. Y., 3 species of Delaware grapes, 2 Logan grapes, 1 unknown.

Dr. J. F. Boynton, Syracuse, 14 varieties of pears.

Mr. Lyon, Plymouth, Mich., 27 varieties of pears and apples.

Mr. W. H. Mitchell, Harlem, 13 varieties of pears and 14 varieties of apples.

Mr. C. H. Moore, New-York, 1 seedling pear.

Mr. E. Ware Sylvester, Lyons, N. Y., 3 varieties of pears.

Prof. Mapes, 13 varieties of pears—most of them of superior excellence.

Messrs. Westbrook & Mendenhall, Greensboro, N. C., 77 varieties of apples and 13 varieties of pears. The apples of this collection beat the North, by a great distance, in size and beauty.

Mr. John G. Bergen, Brooklyn, 40 specimens of the Island pear (a new variety), 20 specimens of the Bergen pear, and 12 specimens of the Englebert Lott.

Mr. James M. Paul, North Adams, Mass., 20 varieties of apples and 10 varieties of pears.

Mr. S. P. Carpenter, New-Rochelle, 3 new varieties of pear, originating in Westchester County.

Mr. E. G. Studly, Clavarack, Columbia County, 10 varieties of apples.

Mr. W. P. Townshend, Lockport, N. Y., 38 varieties of pears.

Mr Joshua Pierce, Washington, D. C., 5 enormous cantelope melons, 18 to 22 inches long.

Mr. Charles Denning and Dr. Grant of Long Island exhibit very fine specimens of the Delaware and Catawba grapes.

More, concerning the proceedings of this Society, may be expected in our next.

Miscellaneous.

GALLOWS HILL.

THIS famed locality, on the westerly border of the city of Peace, in Mass., on which a score or more of our ancestors in 1692, were offered a sacrifice to the delusion that then prevailed, is no vision of the imagination. It is a real eminence, rising one hundred feet above the plain below;—and although no lettered monument marks the spot, it will be remembered while time lasts. We have often thought, how prone are mankind to raise monuments to events that flatter their pride; but those which should admonish them of their follies, how ready are they to pass heedlessly by. There are lessons of instruction to be drawn from the humble mounds of this summit, that should arouse all the energies of the soul. While glancing the eye about the base of the hill, we could not fail to observe the crumbled monument of *free stone* that mark the resting place of the last remains of Eliza Wharton, the idle curiosity of whose visitors, has almost effaced the

inscription thereon. Contrast the two, the one a frail young woman, solitary and alone at a village inn, laying down her life a victim of the artifices of a vile seducer;—the other twenty or more of that noble race of Puritans, too pure to bend the knee to Baal. When will posterity do them justice? If one hundred years ago there had been erected on this eminence, a conspicuous monument with a just inscription thereon, the farces of spiritual rappings which have led captive so many, and actually deranged some, would never have occurred.

Sept. 10th, '58.

P.

Let our correspondent be sure if he kicks against the old-times hanging and the persecutions for opinion's sake, to keep it before the people of this age, that when our ancestors persecuted for religious beliefs, it was in a persecuting age. It was bad enough that they should have for a moment sought to deprive others of that liberty of conscience for which

they had clamored loudly and forsaken all; but let us give them the credit of having showed less of a persecuting spirit than any other people in their times. We are not so much ashamed that our ancestors brought down the power of the state upon those who differed from them in religious belief, as that there are men among us who would do the same to-day if they could.

The spiritual rappings will die a natural death very soon if we will let them alone; but if we should attempt to force the abettors of them to our way of thinking, be our way right or wrong, and theirs ever so wrong, they would go to the stake before they would give them up, that is, so many as are sincere, while others, who have gone the figure, without any settled convictions, perhaps to make a little money out of the affair, would abjure their belief in the rappings and other fooleries.—Ed.

WITCHCRAFT IN THE SEVENTEENTH CENTURY.

A RETROSPECT OF EVENTS IN MASSACHUSETTS IN 1692.

[CONCLUDED.]

As in war, so in love, all stratagems are held to be fair; and the witch's spell would be frequently a useful agent to facilitate the wooings of many a dying swain, whose lady-love found difficulty in evading the officious intrusiveness of vigilant friends. The following instances of witchcraft may very possibly have had their origin in some such cause. The chronicler of these events says:—"But of all the preternatural things which these people suffered, there were none more unaccountable than those wherein the demons would every now and then cover the most corporal things in the world with a fascinating *mist of invisibility*. A person was haunted by a most abusive specter, which came to her, she said, with a sheet about her, *though seen to none but herself*. After she had undergone a deal of teasing

from the annoyance of the specter, she gave a violent snatch at the sheet that was upon it; wherefrom she tore a corner, which in her hand immediately was beheld by all that were present, a palpable corner of a sheet; and her father, which was with her caught, that he might see what his daughter had so strangely seized; but the specter had like to have wrung his hand off, by endeavoring to wrest it from him; however he still held it, and several times this odd accident was renewed in the family. As, now a person was cruelly *assaulted by a specter*, that she said came at her with a spindle, *though nobody else in the room could see either the specter or the spindle*, at last, in her agonies, giving a snatch at the specter, she pulled the spindle away; and it was no sooner got into her hand, but the other folks then present beheld that it was a real, proper, iron spindle; which when they locked up very safe, it was nevertheless, *by the demons taken away to do farther mischief*."

At Andover, Essex Co., Mass., upwards of fifty people were accused of witchcraft, but the virulence of the poison was wearing out, and three only were executed. The trial of one of the three, Martha Carryer, will afford us the opportunity of showing the kind of evidence on which the poor sufferers were convicted.

Her indictment which was tried in August 1692, stated that she had "used, practised and exercised certain detestable arts called witchcraft and sorceries, wickedly and feloniously upon and against Mary Wolcott of Salem village, single woman, by which—she was and is tortured, afflicted, pined, consumed, wasted and tormented."

Our authority commences his account of the testimony given on the trial, by the *merciful* intelligence that, "before the trial of this prisoner, several of her own children had frankly and fully confessed, not only that *they were witches* them-

selves, but that their mother had made them so." But he adds that *there being amply* other evidence her own children's was not used!

One Abbot gave in his testimony, "that last March was a twelvemonth, this Carryer was very angry with him, upon laying out some land near her husband's, her expressions in this anger were, that she would stick as close to Abbott, as the bark stuck to the tree; and that he should repent of it before seven years came to an end, so as Dr. Prescott should never cure him. These words were heard by others besides Abbott himself, who also heard her say, that she would hold his nose as close to the grindstone as ever it was held since his name was Abbott. Presently after this he was taken with a swelling in his foot, and then with a pain in his side, and exceedingly tormented. It bred a sore, which was lanced by Dr. Prescott, and several gallons of corruption ran out of it. For six weeks it continued bad, and then another sore bred in his groin, which was also lanced by Dr. Prescott. Another one bred in his groin, which was likewise cut, and put him to very great misery. He was brought to death's door, and so remained until Carryer was taken and carried away by the constable, *from which very day he began to mend*, and grow better every day, and is well ever since."

This poor ignorant fellow seems to have had a bad constitution, which made a stout effort to rid itself of unhealthy secretions. But it was unfortunate for the poor woman that nature should have relieved itself, just at the time of this witch panic.

Another man, named Toothaker, testified "that Richard, the son of Martha Carryer, having some difference with him pulled him down by the hair of his head; when he rose again he was going to strike Richard Carryer, but fell down flat on his back to the ground, and had not power to stir hand or foot, until he

told Carryer that he yielded, and *then he saw the shape of Martha Carryer go off his breast*. This Toothaker had received a wound in the wars, and he now testified that Martha Carryer told him, that he should never be cured. Just before the apprehending of Carryer, he could thrust a knitting-needle into his wound four inches deep, but *presently after her being seized he was thoroughly healed*.

He further testified, "that when Carryer and he sometimes were at variance *she would clap her hands at him and say he should get nothing by it*. Whereupon he several times lost his cattle by strange deaths, whereof no natural causes could be given."

Here we have evidently one of the most superstitious of witchmongers!

"Samuel Preston testified that about two years ago, having some difference with Martha Carryer, he lost a cow, in a strange, *preternatural, unusual manner*, and about a month after this, the said Carryer, having again some difference with him, she told him he had lately lost a cow, and it should not be long before he lost another, *which accordingly came to pass*, for he had a thriving and well-kept cow, which, without any known cause, quickly fell down and died."

It certainly seems that Mrs. Martha Carryer was rather an ill-tempered woman, and a troublesome neighbor. Whether she may have poisoned this man's cows, one or both, in a legitimate way, admits of possibility.

Phebe Chandler testified "that about a fortnight before the apprehension of Martha Carryer, on a Lord's day, while the psalm was singing in the church, this Carryer then took her by the shoulders, and, shaking her, asked her where she lived. She made her no answer, although as Carryer lived next door to her father's house, she could not in reason but know who she was. Quickly after this, as she was at several different times crossing the field, she heard a voice that *she took to be Martha Carry-*

er's, and it seemed as if it were over her head. The voice told her she should, within two or three days, be poisoned. Accordingly, within such a little time, one half of her right hand became greatly swollen, and very painful, as also part of her face, whereof she can give no account how it came."

Very probably this old lady had taken a walk in the woods, and got herself stung by the well-known Mercury vine.

We are further told that, "In the time of this prisoner's trial, one Susanna Shelden, in open court, *had her hands unaccountably tied together with a well-banded, so fast, that without cutting, it could not be loosened. It was done by a spectre; and the sufferer affirmed that it was the prisoner's!*"

This last piece of evidence in poor Martha's trial, although of no avail in her favor, seems to have been of rather too spectral a character, even for the legal obtuseness of the judges to swallow. For we are told by the learned Doctor from whose records we have borrowed, that "they then took one thing more for granted, wherein it is now generally thought they went out of the way. The afflicted people vehemently *accused several persons, in several places, that the spectres which afflicted them did exactly resemble them*, until the importunity of the accusations did provoke the magistrates to examine them. Now many good men took up an opinion, that the Providence of God would not permit an innocent person to come under such a spectral representation; and that a concurrence of so many circumstances would prove an accused person to be in a confederacy with the demons, thus afflicting of the neighbors; they judged, that *except these things might amount unto a conviction, it would scarce be possible ever to convict a witch*; and they had some *philosophical schemes of witchcraft*, and of the method and manner wherein magical poisons operate, which further supported

them in their opinion. Sundry of the accused persons were brought unto their trial, while this opinion was yet prevailing in the minds of the Judges and Juries, and perhaps the most of the people in the country, then mostly suffering; and though against some of them that were tried, there came in so much other evidence of their diabolical compacts, that some of the most judicious, and yet vehement opposers of the notions then in vogue, publicly declared, had they themselves been on the bench, they could not have acquitted them; *nevertheless, divers were condemned, against whom the chief evidence was founded in the spectral exhibitions.*"

At length the magistrates, who for six months appear to have been quite as reprehensible as the rest of the community, became alarmed at the deeds of blood that they had sanctioned; and one of them named Bradstreet, who had granted above thirty warrants for commitment of accused persons to prison, refused to grant any more. The effect of this was, that he and his wife were instantly accused themselves, and the deaths of nine persons by diabolical agency were attributed to them. They sought safety in flight, and so escaped.

The magistrates having become convinced of the wickedness into which ignorance and fanaticism had betrayed them, and perhaps becoming much alarmed for the personal security of themselves individually, they resolved to draw a veil over the past, and stretch forth the olive-branch of peace!

They therefore held a special court on the subject; some forty or fifty accused persons were brought to trial; and all we acquitted except three who were pardoned by the Governor. There were some others in prison who were released, and the fearful tragedy was thus brought to a close.

The witch excitement gradually gave way, both in the old and new world, before that extension of truth, which the

last century and a half has seen steadily advancing, in aid of the cause of Christian philanthropy, and the permanent happiness of mankind.

Although we are far removed in this age from the delusions we have been relating, we must not assume that there are no others now rampant in the world, which may not, in their further development, tend to evils as great as those we have passed in review, if not to the infliction of cruelties so apparent.

Ignorance on any subject must ever bear its fruit; and that fruit must partake more or less of the poisonous and noxious qualities of the tree that bore it.

Let every father, every citizen, remember, that in an hour he can sow an acre of corn, from which to eat the bread of life; and which in due season his generous foster mother earth, will assuredly bear him. But let him reflect also, that did he meditate upon the subject, from that hour till his dying day, his philosophy cannot explain to his inquiring mind the mystery, *HOW that corn grew.*

From this let him draw the corollary, that knowledge must be sought for with diligence, and that much time and energy should be devoted to the cultivation of the mind, whilst the wants of our animal frame are few, and easily satisfied.

That man is the best patriot who removes the greatest number of obstacles that choke up the avenues of the Temple of Truth, and so lays bare for the benefit of his own and of succeeding generations additional means of usefulness, and consequently of Benevolence.

Could reflections such as these, when called forth by the retrospect of the past that we have taken, produce their legitimate effect upon the minds of the age we live in, the innocent victims of the persecution for witchcraft would not have died in vain.

May they rest in peace.

GRANDPA'S LETTERS TO BOYS.

LETTER III.

IMPORTANCE OF DECIDING EARLY ON A RIGHT COURSE.

WELL, boys, here is another letter for you. I hope you have carefully read and studied the last, and have resolved to profit by it. If so, there is great hope that you will grow up to be men of some consequence, and I feel greatly encouraged in my efforts to do you good.

If you have resolved on taking a proper course, you need not expect that your way will be smooth and even all the time. No, you may calculate on meeting with many trials, and much opposition. This life is a life of warfare. There are many enemies to encounter, and it is often with great difficulty that we obtain the victory. But do you not know that the more trouble we are at in obtaining an object, the more highly we prize it, and the more credit is due to our exertions? I always think it is an evidence of a strong mind to persevere in the attainment of an object amidst difficulties and opposition. There is always something noble in forming and keeping a good resolution, and never yielding to discouragements.

In deciding on a certain course of conduct, or in doing a certain thing, a great deal depends on the will or the strength of the resolution. If a person has not got his own consent fully to do a thing, or if he is indifferent about it, he is not likely to do it. But if we fully resolve to do a thing, we are very apt to do it, however difficult it may be.

I hope, then, my dear boys, that you will have good sense and judgment enough to choose a right course of conduct, and then resolve with all your might to pursue that course. Let nothing turn you aside from the path of duty. However you may be tempted by the allurements of the world, or by wicked companions, see that you go

straight forward in the right way, and turn neither to the right hand nor to the left. It is the straight forward path of duty that leads to honor, usefulness, and happiness. Oh, if all boys would pursue this course, what a happy world we would have. Every one would strive to do right. There would be no drones—there would be none to retard the progress of virtue and morality. Our country would prosper—the arts and sciences would flourish—commerce would increase—agriculture would improve—and happiness and prosperity would reign triumphant through the world. No more would we hear of beggars, and thieves, and defrauders, and gamblers, and swearers, and drunkards, and murderers.

Now, my brave boys, would you not like to see such a state of things as this? Would you not like to assist in bringing about such a time, or be co-workers with others in the great work of reformation? Well, do your part, and it will count something. Every one can do something. Even the young may have an influence. Do you ask how this can be? I will tell you. It is by taking a right course now, and acting in such a way as to make great and useful men, and then your influence will be seen and felt throughout the world. Should not this encourage you and stimulate you to a proper course of action? Think of it, and act accordingly.

Yours truly, GRANDPA.

ON THE HORSE QUESTION.

Gov. WISE, of Va., in a letter to the committee of the National Horse Exhibition, at Springfield, inviting him to be present, among other *wise* things, says the following:—

"It has been said that nothing else than horse-racing will improve and keep up the breed of fine-blooded stock. I am not willing to believe any such thing. Improved agriculture, and the wealth it produces, will, in my opinion, do far more for the horse than ever the turf did.

Race-tracks, with a fashion for the sport of racing among the leading proprietors of a people, will impoverish them, and dwindle the horse to a pony. The fine blood ought to be kept pure, in order that it may be crossed on the large and coarse stock."

When such men as David Leavitt of this city, and others of like sterling worth, such as are associated with the Springfield exhibition, tell us that they are combined to take the business of showing off fine horses, trying speed &c., out of the hands of the jockey, we are bound to believe it, for we know that such men are very capable of looking at the moral as well as the material interests of a people, and they are true men. So far as they have the power to control, things will go at these shows about as in their judgment is best for the public weal now for all future time. Our confidence in the men assures us of so much. But we suppose that like other men, they may err in opinion, and we venture to hold fast to the views we have always expressed, as admirably set forth in the above from the pen of Gov. Wise.

On the matter of horse-racing we are not superstitious. We are not within a gun-shot of it. So far from it are we, that we could not see the hateful thing, even with a long telescope. If we really thought that the fastest horses were the best of horses, and that trials of speed are the shortest road to the improvement of horse-flesh, we would shout as loud as the loudest, and throw up our hat as high; and, if it came down in the mud and a fast horse trod it into the soil past recovery, we would go home bare-headed, and think the misfortune only an incident to the attainment of a great object. What is the loss of a hat, and a cold head for one single evening, to the object of putting our country ahead of the world in the value of its horse stock? If a man or two were to be killed at every heat they would die in a good cause, and, there should be no complaining. All this, if we really believed that the al-

most exclusive cultivation of speed were the way to the great object. But unfortunately—it may be—for us, we believe directly the reverse; that this yearning after the fastest horses, stimulated as it is by the hopes of a golden reward at our fairs, and wrought up to an unnatural intensity by the shouting and hat-heavings of the million, and incensed over with woman's smiles, will put back, by a long period, but not forever, the day when our country will beat the world in such horses as will do our work best, serve us the most surely, and best gratify a chastened pride in that noblest of the brute animals. There are other tests than the ability to scramble over the ground; and these other tests are overlooked, in the mad desire to come in first. We could give cogent reasons for thinking thus, and may do so at another time. At present we have only space to say that the fastest horse is not necessarily the best horse, any more than the fastest man is the best man.—Ed.

THE CROPS OF 1858.

To the Editor of the Colonist, (C. W.)
BUREAU OF AGRICULTURE AND STA-
TISTICS, Sept. 3, 1858.

SIR -- A number of circulars having been issued by this Department for the purpose of gleaning information about the probable yield of the crops of 1858, and the diseases affecting them, it is desirable, at this season of the year, to let the farmers know the result of some of these inquiries, in order to guide them in the sowing of fall wheat, and enable them to judge of the propriety of leaving part of the land for spring wheat. Thirty-five returns from twenty-six counties have been received and analyzed. In eighteen of these counties the wheat midge and rust have been very prevalent, and the crop seriously injured. In three the rust and mildew, without the midge, were very destructive—namely: Waterloo, Peel and Pontiac. The wheat crops in Stormont, Carleton, Greenville, Lanark and Russell, in Canada West, and Huntingdon in Canada East, are said to be free from disease of any kind, except a slight rust in Russell.

The average produce of the whole twenty-six counties is 12½ bushels per acre of winter wheat, and 14 3-4 bushels of spring wheat,—showing a deficiency of about 40 per cent in winter wheat, and 10 per cent in spring wheat. A fact worth knowing is, that the spring wheat, called Fife or Glasgow wheat, has entirely escaped injury from rust; and also that all spring wheat sown after the 26th of May, has escaped injury from the midge (or wheat fly), being too late for the fly, which deposits its ova from the 20th June to the middle of July. Wheat thus late sown is not forward enough to receive the deposit. A species of wheat, called the Mediterranean wheat, is also said to be free from the ravages of the midge, but does not appear to be highly approved in other respects. The spring wheat called club wheat is universally condemned, as being subject to rust.

Never before in the history of Canada, has so much injury been done by rust as this year. Many of these reports show that it arises generally, if not always, from want of proper drainage, and of early sowing of early kinds of wheat on well shaped ridges, well water-furrowed which are a great aid in the way of drainage. It may be, that the influence of hot, damp, close muddy weather after a drought, are *less sudden* on well drained, deeply ploughed, well cultivated land; and these sudden influences are what cause rust, by the greatly increased sap bursting the straw and flowing downwards, instead of rising to nourish the ear. This is more probably the cause of rust than fungi, or insects, to which many attribute this most destructive disease; the straw of rusted wheat will, on examination, be found to be cracked longitudinally. With regard to the midge, all reports seem to concur that early sowing of early seed on early land, made early by good draining and well shaped ridges, is the best preventive; but under present circumstances, I think a cautious farmer would do well to sow one half of his land in winter wheat, and the other half in spring wheat, using the above precaution of good draining, &c.,

A Mr. Alexander McKenzie, a practical farmer, has written a valuable little pamphlet, showing from repeated experiments that a dressing of lime thrown on the land soon after the grub of the midge has fallen from the wheat ear, and whilst in a soft state, is a complete remedy,

destroying the grub entirely. This little pamphlet is well deserving the attention of farmers, as lime can be easily procured throughout almost all of Upper Canada, and can be burned without any very great expense, and in addition to killing the grub, will add much to the fertility of the soil. A Mr. Swan, the owner of the farm to which was awarded the 1st prize in Cayuga county, New-York, as being the best managed farm, states that he lessened the destructiveness of the midge very materially by sowing a barrel of salt to the acre after the wheat had braided.

With regard to other green crops, the reports show an average yield about the same as in other years; rye, 19½ bushels per acre; barley, 19; oats 31½; Indian corn, 36½; peas, 21½; potatoes, 124½. Of these last there are fifteen returns which state that they were free from rot up to the 30th August last, and eight which state that the rot had commenced; the other twelve give no report as to rot, which no doubt they would have done had it been prevalent. There is certainly a great decrease in the extent and destructiveness of this disease, and it is hoped the root will hereafter be more generally cultivated. The prevalence of the rot has hitherto deferred many from planting.

I may add that there are other counties which have not yet reported, but which are said to be very seriously affected by midge, rust and blight,—viz., Hastings. The new lands, however, north of Hastings, on the Free Grant Road, are entirely free from midge and nearly so from rust.

Yours truly,

WILLIAM HUTTON, Sec.

CROPS.—Farmers are beginning to cut up their corn, and the prospect for a good crop is usually good. The growth of stalks is very great, and the ears seem to be well filled out. Another week of warm weather and most of the corn in this region will be out of the reach of frost.

POTATOES promise better than for many years past. Should the rot let them alone, we shall not be under the necessity of stinting ourselves in the use of this staff of life.

After the speculators' panic on short crops at the west have subsided, we think the abundant crop of grass, rye, oats, wheat, Indian corn, and last, but

not least, potatoes, in the eastern and middle states will avert from us famine for the next twelve months.—*Hamp. and Franklin Express.*

HORSE SHOW.

THE National Horse Show at Springfield, the past week, proved a great and grand affair, drawing together thousands of people, and showing off horse-flesh to the greatest imaginable advantage. Such an exhibition may not again be witnessed in New-England for years.

We believe that it was so regulated by wise heads as to present as little as possible that should be found fault with. Would it not be well, if these horse shows and cattle shows, were always held at separate times and places? The growing taste and desire for horses of superior quality will be well for the farmer, as the rearing them cannot fail to be one of the most profitable branches of agriculture; but it cannot be denied that the almost exclusive attraction to horses at our fairs, is a damper to the farmer, who, has fine cattle, sheep, swine and other productions to exhibit at the same time and place.

A WHITE ROBIN.

WE have heard before of *White Blackbirds*, but now of *White Robins*. Mr. W. J. Wilcox, to-day, Sept. 10th, 1858, (we mark the date, for it is a new idea with us,) brought us a white robin. He had been through the process of stuffing and securing glass eyes, and being mounted on a moss-covered sprig, and was white as the snow. The story is that a pair of robins, on Mr. W.'s place, at Clarksville, Rockland Co., N. Y., brought up a brood of robins last Spring, colored and shaded all right, as robins should be; but the summer brood of these same robins were all white; as many as forty witnesses will testify to the fact, and none of them ever saw the like before. We have never seen an instance of the kind (among robins,) so far as we remember. Is there any thing marvellous in it, or not?—Ed.

AN AUTUMNAL LEAF.

BY THE "PEASANT HARD."

Sounds the wakeful rooster's warning:

'Tis a damp and foggy morning,

Thick and gray;

Sure the shades of night are fled,

But there's something else instead

Of the day.

'Tis the night, painted white,

And the eye is unavailing

In the vapor all assailing

With its shroud;

We are gloomed, gloomed, gloomed!

All the landscape is entombed

In a cloud.

'Tis the time when woods are sighing, and the leaves
they are dying,

And are dead;

See the ashes, tall and slim, standing by the water's
brim,

Where they fed;

How they shed all their dead,

Summer plumes that hid the nest where the birdie
took its rest

'Mid the leaves!

Down dripping, dripping, dripping, like the rain
softly slipping

From the eaves.

There's a sort of muffled drumming, for the distant
mill is humming,

Grinding grist.

And the Fisher-king is winging, an' his clacking
rattle springing

In the mist;

And I hear, seeming near,

As it were, the distant greeting of two early goers,
meeting—

Strangely, loud;

And, clipper, clipper, clipper! how the wings of
that "clipper"

Out the cloud!

But the sun at last is wading, through the vapor
overshading,—

There he shines!

And the curtain, upward stealing, slow the land-
scape is revealing

"To the Nines."

Stocks of grain on the plain

Look like wigwams on the prairie, some encamp-
ment of the fairy

Brothers red;

And with tittle, tattle, tattle, waters sparkle as they
prattle

O'er their bed.

Put the eye of day is dimmer than in summer; has
a glimmer

Palely bright;

Pneums wearies of his toll, or is getting short of oil
For his light.

But the flowers still are our's:

There's a honeysuckle turning, and the golden-rod
is shining,

Bright to view;

And, oh! bonnie, bonnie, bonnie! There's the
fringy little honey,

Gentian blue!

And the days are shorter growing:

Down the occidental going,

Sinks the sun;

And the stars that might adorn,

Clip the twilight, and are born,

All as one.

Oh, my soul! so they roll!—

Roll the days, the months, the years!

Full of gladness, full of tears,

Are our eyes;

Till solemn, solemn, solemn,

Facts the sum-total column:

HERE HE LIES!

Knickerbocker.

GILL, Mass., Sept. 27, 1857.

SPECIE IN THE COUNTRY.

"It is estimated, (says an exchange,) that the amount of specie in the United States, at the close of 1849, was one hundred and fourteen millions of dollars; the coinage at the United States Mint, since 1849, has amounted to four hundred and eighty millions of dollars; the amount brought into the country by immigrants, since 1849, is estimated at one hundred and twenty millions; the amount of bullion now on hand in the country is estimated at ninety-four millions of dollars; making a total of about eight hundred millions of dollars. The exports of specie (less imports,) from the United States since 1849, have amounted to three hundred and eight millions of dollars; leaving the amount of five hundred millions of dollars existing at the present time, in the shape of gold and silver coin and bullion. The product of the California mines, since their discovery, has amounted to seven hundred and thirteen millions of dollars; of the Australian, to six hundred and fifteen millions of dollars. It has been estimated that at least fourteen hundred millions of dollars have been added within the last decade to the stock of precious metals existing in the world."

A BABE is a mother's anchor. She cannot go far from her moorings. And yet a true mother never lives so little in the present as when by the side of the cradle. Her thoughts follow the imagined future of her child. That babe is the boldest of pilots, and guides her thoughts down through scenes of coming years. The old ark never made such a voyage as the cradle daily makes.

THE EFFECTS OF TOBACCO.

THE Dublin Medical press asserts that the pupils of the Polytechnic School in Paris have recently furnished some curious statistics bearing on tobacco. Dividing the young gentlemen of that college into two groups—the smokers and non-smokers—it shows that the smokers have proved themselves in the various competitive examinations far inferior to the others. Not only in the examination on entering the school are the smokers in a lower rank, but in the various ordeals that they have to pass through in a year the average rank of the smokers had constantly fallen, and not inconsiderably, while the men who did not smoke enjoyed a cerebral atmosphere of the clearest kind.

THE COLD WATER MAN.

A BALLAD, BY JOHN G. SAXE.

It was an honest fisherman.

I knew him passing well,
And he lived by a little pond
Within a little dell.

A grave and quiet man was he,
Who loved his hook and rod;
So even ran his line of life,
His neighbors thought it odd.

For science and for books he said
He never had a wish;
No school to him was worth a fig,
Except a school of fish.

He ne'er aspired to rank or wealth,
Nor cared about a name,
For though much famed for fish was he,
He never fished for fame.

Let others bend their necks at sight
Of Fashion's gilded wheels,
He ne'er had learned the art to "bob"
For anything but eels.

A cunning fisherman was he,
His angles all were right;
The smallest nibble at his bait
Was sure to prove "a bite!"

All day this fisherman would sit
Upon an ancient log,
And gaze into the water, like
A sedentary frog.

With all the seeming innocence,
And that unconscious look,

That other people often wear
When they intend to "hook."

To charm the fish he never spoke,
Although his voice was fine;
He found the most convenient way
Was just to drop a line.

And many a gudgeon of the pond,
If they could speak to-day!
Would own, with grief, this angler had
A mighty taking way.

Alas! one day this fisherman
Had taken too much grog,
And being but a landsman, too,
He couldn't keep the log.

'Twas all in vain with might and main
He strove to reach the shore—
Down—down he went to feed the fish
He'd baited oft before.

The jury gave their verdict that
'Twas nothing else but gin,
Had caused the fishermen to be
So sadly taken in.

Though one stood out upon a whim,
And said the angler's slaughter,
To be exact about the fact,
Was clearly gin and water.

The moral of this mournful tale
To all is plain and clear—
That drinking habits bring a man
Too often to his bier.

And he who scorns to "take the pledge,"
And keep the promise fast,
May be, in spite of fate, a stiff
Cold Water man at last,

SHERIDAN said, beautifully, "Women govern us; let us render them perfect; the more they are enlightened, so much more shall we be. On the cultivation of their minds depends the wisdom of men."

A TRAVELER announces that he once beheld people "minding their own business!" This happened at sea, the people being too sick to attend to each others' concerns.

"'Tis distance lends enchantment to the view," exclaimed a convict while viewing the penitentiary on a remote hill.

HUMBLE WORTH.

TELL me not that he's a poor man,
That his dress is coarse and bare;
Tell me not that his daily pittance
Is a workman's scanty fare.
Tell me not his birth is humble,
That his parentage is low;
Is he honest in his actions?
That is all I want to know.
Is his word to be relied on?
Has his character no blame?
Then I care not if he's low-born—
Then I ask not whence his name.
Would he from an unjust action
Turn away with scornful eye?
Would he, than defraud another,
Sooner on the scaffold die?
Would he spend his hard-gained earnings
On a brother in distress?
Would he succor the afflicted,
And the weak one's wrongs redress?
Then he is a man deserving
Of my love and my esteem;
And I care not what his birth-place
In the eye of man may seem.
Let it be a low, thatch'd hovel;
Let it be a clay-built cot;
Let it be a parish work-house—
In my eye it matters not.
And, if others will disown him
As inferior to their caste,
Let them do it—I befriend him
As a brother to the last.

—*Pacific Com. Adv., Honolulu.*

WORKING AND THINKING.

It is no less fatal error to despise labor when regulated by intellect, than to value for its own sake. We are always, in these days, trying to separate the two; we want one man to be always thinking and another to be always working, and we call one a gentleman and the other an operative; whereas the working man ought always to be thinking, and the thinker often to be working; and both should be gentlemen in the best sense. As it is, we make both ungentle, the one envying, the other despising his brother; and the mass of society is made up of morbid thinkers and miserable workers. Now it is only by labor that thought can be made healthy, and only by thought that labor can be made happy,

and the two cannot be separated with impunity. All professors should be liberal, and there should be less pride felt in peculiarity of employment, and more in excellency of achievement.—*Ruskin.*

INDIAN CORN.

SEVILLE's soft, luxurious clime
Yields the orange and the lime,
And the cool refreshing shade
By the clustering branches made,
Seems to hold the perfumed air
As a willing captive there.

Ceylon, isle of spice and balm,
Boasts her groves of stately palm;
Where the lingering sunbeams rest,
As they loved that land the best;
Where the birds amid the bowers
Are like gorgeous, winged flowers.

In thy vales, fair, sunny France,
Peasants love thy vintage dance;
Where the vines their clusters yield,
Songs are heard from every field;
All the land in festal dress,
Overflows with happiness.

But of all the precious stores
Nature's bounteous hand outpours
O'er each hill, and vale, and plain,
Flower, fruit or waving grain,
Dearest to the Northern born
Stands the graceful Indian Corn.

When it springs, the verdant leaf,
Bursts the seed's enclosing sheath,
Or, in summer's glowing light,
The feathery tassel greets the sight,
Grace and beauty still adorn
Every change of Indian Corn.

When the autumn's gorgeous dyes
Reflect the hues of sunset skies,
O'er the glowing harvest plain,
There the ears of clustered grain,
In the yellow sheath unrolled,
Seem like topaz set in gold.

—*Me. Far.*

TO DESTROY WIRE WORMS.

NITRATE of soda, one and a half tons per acre, sown in powder, will prove a remedy for this pest. Sow in damp weather, or in the afternoon before a heavy dew is expected. Mr. Newman, who communicates the above, considers nitrate of soda, "the greatest fertilizer ever known, also the quickest in operation." When the ground is moist it will change yellow oats to a healthy green color in four day's time.

WHAT WILL RUIN CHILDREN.

To have parents exercise partiality. This practice is lamentably prevalent. The first born, the only son or daughter, the beauty or wit of a household is too commonly set apart, Joseph-like.

To be frequently put out of temper. A child ought always to be spared, as far as possible, all just cause of irritation and never be punished for wrong doings, by taunts, cuffs, or ridicule.

To be suffered to go uncorrected to-day for the very thing for which chastisement was inflicted yesterday. With as much reason might a watch, which should be wound backward half the time, be expected to run as well, as a child thus trained become possessed of an estimable character.

To be corrected for accidental faults with the same severity as if they were those of intention. The child who does ill when he meant to do well, merits pity not upbraiding. The disappointment to the young projector, attendant on the disastrous failure of any little enterprise, is of itself a sufficient punishment, even were the result brought about by carelessness. To add more is as cruel as it is hurtful.

To be made to feel that they were only burdens. Parents who give a child to understand that he is burdensome to them, need not be surprised should they one day be given to understand that they are burdensome to him. They should bear with childhood.—*Country Gent.*

CHILDREN'S CORNER. — The children must be contented with Grandpa's letter to boys for this month, as the printer has shut down upon us. There will be more room next month, and the children shall not be forgotten.

OUR OWN AFFAIRS.—To facilitate the return of club lists for our next volume, we now make this offer;—To all clubs formed this fall, we will send the *Farmers' Magazine* for the price of one year (see prospectus on cover), from the time of receiving the money at this office and one month previous to January 1860, giving one, two, or three numbers extra, as they will decide. Will our subscribers pass it along among their neighbors?

BOOK NOTICES, ETC.

MANUAL OF BOTANY OF THE NORTHERN UNITED STATES. Revised Edition. Including Virginia, Kentucky, and all East of the Mississippi; arranged according to natural system. By Asa Gray, Fisher Professor of Natural History in Harvard University. With six plates, illustrating the genera of Ferns. New-York: Ivison & Phinney, 321 Broadway. Chicago, S. C. Griggs & Co., 41 Lake-st; Buffalo, Phinney & Co.; Philadelphia, Sower, Barnes & Co.; Newburg, T. S. Quackenbush. 1858. pp. 606, 8vo.

This is the third in Professor Gray's series. Like its predecessors, it is characterized by its simplicity and its instructiveness; but is not like them, a book for everybody. Much previous knowledge of the subject is necessary to its successful perusal. The farmer, the gardener, the children of both, everybody's children, should read and study the two previous works, "How Plants Grow," and "Lessons in Botany." But this is a work rather for students than for the general reader; but of its kind is among the best, probably the very best, yet published. We commend it rather to the scholar than to the worker in the soil.

WELLS'S PRINCIPLES AND APPLICATIONS OF CHEMISTRY; for the use of Academies, High Schools and Colleges. Introducing the latest results of scientific discovery and research, and arranged with special reference to the practical application of Chemistry, to the arts and employments of common life. With 240 illustrations. By David Wells, A. M., author of "Wells' Natural Philosophy," "Science of Common Things;" Editor of "The Annual of Scientific Discovery," &c., &c. New-York: Ivison & Phinney; and as above, pp. 500, 12mo.

This work is well adapted to the use of students in Colleges, academies and schools. It presents the great principles of chemistry, embracing the latest results of scientific discovery and research in this country and Europe, with numerous and valuable illustrations. To Chemistry and the Mechanical Philosophy, but far more to the former than to

the latter, are due most of the great improvements of the age. Every man who thinks, and especially every young man, should know something of Chemistry, even though he may not be able to attend school, or to employ a master; and we know of no book from which would sooner advise those who are obliged to educate themselves, to dig out something useful, than this. Our young friends should understand that a Chemistry is no book to read through, as we would read a story; but the science is one of intense interest, and of the greatest practical utility, if studied. We think Mr. Wells has succeeded in giving a "practical application of Chemistry to the arts and employments of life." Professor Gray's Introductory Botanies are written in such a way, that who so reads may understand. So far as the nature of the subject admits, Well's Chemistry is like them; *plain*, readable, understandable, by all of medium capacity.

THE SCIENCE AND ART OF ELOCUTION AND ORATORY; containing specimens of the eloquence of the Pulpit, the Bar, the Stage, the Legislative Hall, and the Battle Field. In three parts. Part I., Theoretic and Scientific; Part II., Historical, Classical, and Poetical; Part III., Comical and Musical. By Worthy Putnam, professor of Parliamentary and Forensic Oratory in the Ohio State and Law College.

"There is a charm in oratory, a magical art,
That thrills like a kiss from the lips of the heart."
New-York: C. M. Saxton, 25 Park Row.

We do not think much of eloquence, as a thing to be artificially acquired. Ten men suffer from not having anything to say, to one who suffers from not being able to say well what he does know. Nevertheless, the "Worthy" Professor has written "worthily" on this subject, and we commend his work to all who need it. Children should be taught elocution in all our schools, if for no other reason, because it tends to expand the lungs and chest, and to give physical energy; and if the teacher and

a few of the more advanced pupils will own and peruse this book, it will certainly be help towards teaching the young idea. We leave off as we began, with the opinion that if a person knows a thing and really believes it to be worth saying—feels its pertinence to the time, place, and assembly—he will be apt to say it right without any special drilling for the purpose, but without this requisite all the drilling in the world will fail to make him eloquent.

TRUE TO THE LAST; OR ALONE ON A WIDE WIDE SEA. By A. S. Roe; author of "I've been Thinking," "To Love and to be Loved," "A Long Look Ahead," "The Star and the Cloud," &c., New-York: Derby & Jackson, 119 Nassau-street.

This is a book of some 400 closely printed, 12 mo pages. It has a short titlepage, telling nothing, no preface, no table of contents, no headings of chapters, no guide board, lamp-post or any mark to pre-admonish one where to begin or where he will come out. In short, there is no way of knowing what the book is, but the old-fashioned way of reading it all through, and who thinks of doing such a thing in these days of steam and cables?

We have read enough to know that we should have read the whole with a zest in our younger days; and that we would go straight from page No. 1, (it is paged like other books,) to page the last now, if we had time; but not enough to know whether, as an honest exponent of the current literature of the times, we could recommend others to follow. Any such thing as a skip, hop and jump perusal, (through in about ten minutes,) such as grave reviewers sometimes adopt, as the basis of very confident opinions, paraded to put an author up or to put him down—to make him a great man, or to annihilate him, is out of the question. In fact, one must read the book, or take the down-east privilege, and *guess* at its contents, or say nothing about it. The first is out of our reach; the last is no

part of an editor's business. We take the middle course, but we will not guess without a clue. Our neighbors, Derby & Jackson, generally publish good books, those that you can read and be the better for reading them—a presumption that this is such. Again, the author has written other books, with such titles as favor the idea that he is a true man in sympathy, truth, sincerity, goodness; able to distinguish between mere glitter and real worth; to judge of men by other than the money test, and to teach our young friends, who we think will be his most numerous readers, what the real end and object of life is—another presumption. Once more: we have read a few pages of this book, and what we have read is so truthful and so appreciative of whatever is exalted and noble in human life, that we should be inclined to *guess* favorably of the whole. Further, this deponent saith not.

We take occasion to say, that we sometime since noticed a book, entitled, "First steps towards Heaven, or Religion in Common Life," by the same firm, about as dubiously as we have the above, and that having since found time to read it, we have ascertained it to be, just what we then thought, but dared not say, it was—a capital book; one of those, that, when you begin, you cannot break off from till you are through, and then only to wish there were more such chapters to come; one that scolds no man's religion, but tells us what all our religion should be in every-day life; that admires and loves a Sunday religion, but requires in an every-day religion more, as the best and the only thing to throw a hallowed joyousness over this life, and open bright portals to the next.

THE AGE: A Colloquial Satire. By Philip James Bailey, author of "Festus." Boston: Ticknor & Fields. 1848. 208 pages, 12mo. For sale by Blakeman & Sheldon, 115 Nassau-st., New-York.

This is a colloquial satire, in fair verse, measured and in rhyme; and so

we are to laugh at the follies of the age by rule. Well, it is a good thing to laugh—good for him who laughs, for it promotes health, and for him who is laughed at, for not a few will consent to be laughed out of their follies who would not forsake them for a better reason.

This book is put up in beautiful style; and is altogether readable by any one who can spend an evening for the purpose.

Since penning the foregoing notices, we have ascertained, on the best authority, what it may be thought we ought to have known before, that A. S. Roe is a farmer of old Connecticut, though we "reckon" not an every-day working farmer; that he has long been a favorite author, read extensively on both sides of the Atlantic, and that his works may be safely commended.

MARKETS.

"The Cattle Market still continues largely overstocked. The receipts for the week amount to 5,305, against an average of 3,143 for the weekly receipts for all last year. The total receipts for only four weeks past amount to 20,626, or an average of 5,156 per week. Prices were down again yesterday about $\frac{1}{2}$ ¢, and beef is now wholesaling considerably lower than at any time before in many years. Consumers *should* now make their purchases at reduced prices."

So says the New-York *Times*, but we venture the prediction that the consumer in New-York has got to pay two or three times as much for beef and all other farm produce as the farmer in the country gets for it, till more among us are willing to live by our labor, and less by speculation, and that will unquestionably be till a juster appreciation of the importance of protection for American industry against pauper labor abroad prevails in our national councils. When we will consent to make our own iron and our clothes, instead of buying them, there will be better times for the farmers, but not before.—Ed.



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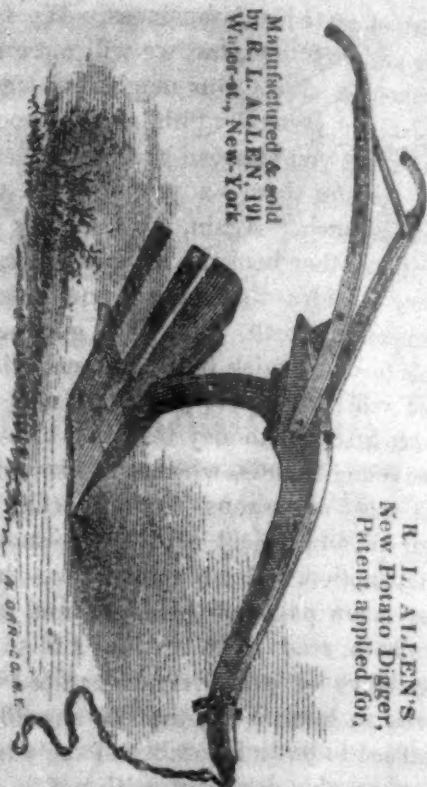
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[Oct.]



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This implement weighs only 85 lbs., is of light draft and simple in construction. A pair of small horses or oxen, with a lad to drive, will easily dig potatoes as fast as twenty men can pick up. It turns them out so clean that scarcely one bushel in fifty, whether small or large, is left uncovered. This is a most important advantage. The standard is so high as to allow of its working freely without clogging from weeds and potato vines.

In using it, gauge the clevis so that the Plow Share will run about one inch deep directly under the potatoes. Keep the point of the share as near the center of the hills or row as possible. The soil and potatoes are by this means turned completely over, leaving the latter on the top. As it throws the dirt both ways, it is an excellent implement to work in rows of corn, potatoes and other crops during weeding time.

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New-York, Oct. 1st, 1858. [Oct.]

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